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EDITORIAL

THE NEWEST OF OLD JOURNALS

The *Transactions and Studies of the College of Physicians of Philadelphia* has undergone some change, in title and in content, since it first appeared in 1793, as one of about half a dozen medical journals published in the United States before 1800.[1] Now, beginning with the first volume of Series V and with the first number (March, 1979) of that volume, *T & S* has the words Medicine & History inscribed in red capitals on its cover and has transformed itself into a journal of medical history, joining the *Bulletin of the History of Medicine* and the *Journal of the History of Medicine and Allied Sciences.* With Ronald F. Kotrc as Editor and Saul Jarcho as Consulting Editor in Chief it enters this delectable field, a journal which is a century older than the Johns Hopkins Medical School and which is yet, as a journal of medical history, nearly half a century younger than the *Bulletin.* We are consequently a little uncertain whether we should benignly welcome our junior or piously hail the conversion (and salvation) of a splendid old lady who has undergone a jubilant change of heart. Would a low bow be appropriate, with a lush bouquet, or should we offer cup and catechism and a copy of the twelfth edition of the Chicago *Manual of Style?* Resolved that a modest bouquet would best meet the occasion, we present it herewith, extending the most cordial welcome to our venerable colleague and newest confederate and congratulating the College on its further venture.

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[1] Fielding H Garrison, "The medical and scientific periodicals of the 17th and 18th centuries," *Bull. Inst Hist Med.*, 1934, *11* 310; Myrl Ebert, "The rise and development of the American medical periodical, 1797-1850," *Bull Med Lib Assoc.*, 1952, *40* 263 (In spite of the initial date, 1797, in her title, Ms Ebert's paper does list some periodicals of even earlier date, including, on p. 263, the 1793 *Transactions* of the College.)

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Ronald F. Kotrc

The transformed *T & S* is indeed but one manifestation of College activity in this field. The Berry committee of 1968 (chaired by Dr. George Packer Berry, long-time Dean of the Harvard Medical School) was appointed when Dr. Francis Wood was President of the College and the committee recommended the establishment of an Institute for the History of Medicine. The realization of the plan was announced in 1974 when the Francis C. Wood Institute for the History of Medicine was set up, ultimately with substantial private endowment, and a new chapter in the history of the College itself was thereby opened. Dr. Ronald Kotrc was lured from the University of California at Irvine to be director of this new division (Institute). Early in 1975 the National Library of Medicine (NLM) issued a new contract for support of the College's Regional Medical Library Service. The proposal had included a request for an amount of $50,000 a year for the three years of the contract as start-up money to allow the College to initiate its planning for the proposed institute. This was approved (for two and one-half years instead of three) and an interesting caveat was supplied, record of which appears in the form of a footnote in Dr. John P. Hubbard's presidential report for 1974-1978. The published footnote reads as follows: "The NLM's allocation was designated for a Division for the History of Medicine to avoid a precedent-setting contribution to an Institute for the History of Medicine; but it was recognized that the ultimate goal of the College was still an 'Institute!' "[2] Perhaps it might be pointed out that the Johns Hopkins Institute, which has recently celebrated its fiftieth anniversary, was not, perhaps, recognized in Philadelphia as a precedent because of a similar slight difference in name. America has rejoiced for half a century in an Institute *of* the History of Medicine and can now rejoice in an Institute *for* the History of Medicine. (The NLM's preferred word, Division, is apparently, being kept in reserve.)

Early numbers of the transformed *T & S (Medicine & History)* promise well. May it long continue in brotherly (sisterly?) competition with the *Bulletin* and the *Journal* and may it help in expanding the range and significance of studies in medicine's history. The richness and extent of the great College Library ought to supply an admirable foundation on which both institute and journal may build. What it is the Institute does may soon be revealed.

LLOYD G. STEVENSON

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[2] John P. Hubbard, "Quo Vadis Collegium? Report of the President. January 1, 1974-June 30, 1978," *Transactions & Studies of the College of Physicians of Philadelphia (Medicine & History)*, 5th sér., 1979, *1*, n. 2: 88 f.n.

PRIVATE RIGHTS, PUBLIC INTEREST, AND PROFESSIONAL JURISDICTION: THE FRENCH PUBLIC HEALTH LAW OF 1902*

ANN-LOUISE SHAPIRO

The French public health law of 1902 was the product of an aggressive campaign by hygienists in the second half of the nineteenth century to reorganize the nation's health services and to rewrite the deficient health and housing legislation of 1850. For decades, social reformers and politicians had focused on the need to clean up and clear out unsanitary working class districts. Some flirted, in the early 1880s, with the idea of direct public intervention in the housing market, while, at the same time, socialist spokesmen badgered public officials to control speculation and to lower rents. As ideological conflict and administrative inertia stymied these efforts, hygienists redefined the problem in the framework of their own priorities. They sought to codify scattered pieces of legislation so as to provide a coherent body of sanitary standards which would guarantee uniform, enforceable regulations for all of France. Their primary objectives included: routine inspection of lodgings; the reporting of contagious disease; mandatory disinfection and vaccination; the creation and enforcement of building codes which satisfied sanitary criteria; permits for construction and habitation; wider jurisdiction over landlords; more precise definitions of insalubrity; and clear lines of effective authority in matters of health.

By the middle of the nineteenth century, public health issues had been separated out from more general reform movements as objectives were increasingly shaped by professional hygienists. These hygienists were mostly doctors affiliated with academies in which they taught legal medicine and public hygiene; but they also included architects, civil engineers, and statisticians, in explicit acknowledgement of the fact that urban conditions had created challenges which required that the doctor's skills be complemented by the mathematical and mechanical knowledge of corollary specialties.[1] Hygienists formed several new professional organi-

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* Revised version of a paper read at the 52nd annual meeting of the American Association for the History of Medicine, Pittsburgh, Pa , May 5, 1979.

[1] Journals were filled with articles defining the new specialty of public hygiene Typical topics were. "The Role of the Architect in the Fight Against Tuberculosis," "Architecture and Hygiene," "Studies on

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zations and participated in a series of international conferences to define their areas of concern and to examine a broad spectrum of technical problems. *Annales d'hygiène et de médecine légale* continued to be a major forum for the exposition of public health topics, but in 1875, 1877, and 1879 three new journals emerged—*Journal d'hygiène, Bulletin de la Société de médecine publique et d'hygiène professionnelle,* and *Revue d'hygiène et de police sanitaire,* respectively—attesting to the growing vitality of a revamped public health movement.

Thus, the high-blown rhetoric and the romantic aspirations of early hygienists were gradually replaced by more narrowly professional concerns. The general outlines of this trend are familiar. Expanded epidemiological knowledge, more sophisticated statistical methods, and the emergence of professional organizations all served to focus the attention of public health activists in a practical, technical direction during the second half of the century. To a great extent, hygienists abandoned their inflated claims to be the midwives of a new order, ushering in a period of biological, moral, and social regeneration.[2] Instead, they were more likely to address problems of sanitary engineering or the control of contagious disease. The comprehensive public health legislation of 1902 reflects this basic pattern of development.

In pursuing their goals, hygienists met popular resistance as well as opposition from bureaucrats, politicians, and medical practitioners. The proposed new legislation raised the volatile issue of the surrender of private property to the "tyranny of hygiene," and the problem of state intervention and rights of privacy. At the same time, hygiene professionals challenged traditional political authorities for ultimate jurisdiction in questions of health. Because it threatened so many interests, the public health bill remained a subject of intense debate for twenty years before becoming law in 1902.[3] During this time, politicians and legislators re-

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the Hygienic Properties of Construction Materials " The presidential address to the First Congress on Sanitary Improvement and Salubrity in 1895 was entitled "The Role of the Sanitary Engineer in the Direction and Operation of Municipal Hygiene Bureaus " Premier Congrès d'assainissement et de salubrité, Paris, 1895. *Comptes-rendus des Travaux* (Paris, 1897).

[2] In 1829, the editors of the new journal *Annales d'hygiène publique et de médecine légale* wrote of "the great influence [of medicine] on the march of the human spirit " They called upon doctors to "extend the scope of their activity, to enlighten the moralist and undertake the noble task of diminishing the number of social infirmities" in order that "physiology and hygiene might lend their light to the science of government " "Prospectus," *Annales d'hygiène,* 1st ser., 1829, *1*· vii

[3] In 1881, Martin Nadaud introduced a bill to reform the law of 1850 This bill was reported out of committee in 1883, but was not discussed and it lapsed by default in the legislative session of 1885. In 1887, the issue emerged again in a bill presented by M. Lockroy and in one by J. Siegfried which proposed a reorganization of hygiene services. M. Chamberland reported on these two bills to the Chamber of

worked their response to the increasingly well-articulated, well-defined demands of public hygiene.

The jump, however, from the articulation of principles to the enactment of policy is not automatic. A society does not necessarily act in its own best interest, and the dictates of science and medicine do not automatically translate into policy. Witness, for example, the fact that vaccination for smallpox did not become mandatory until 1902. It is necessary, then, to look closely at the political and social backdrop of the 1880s and 1890s to determine why *particular* public health goals became identified with the general interests of the society. It is the purpose of this essay to suggest the areas of agreement, as well as the conflicts, between professional hygienists on the one hand, and the politicians of the Third Republic on the other. It was this conjunction of the demands of hygiene with political realities which ultimately shaped the legislation of 1902 as it moved through the Chamber of Deputies and the more recalcitrant Senate.

Prior to the legislation of 1902, public health measures emerged piecemeal in the form of prefectoral decrees and police ordinances which were most often more impressive on paper than in practice. Typically, authorities adopted preventive measures in the face of an acute problem and these lapsed into disuse as soon as the danger passed. Irregular enforcement, complicated by arbitrary divisions of authority between the Departmental Prefect, the Prefect of Police, and municipal officials, undermined the effectiveness of existing measures. Infractions drew only token fines as public authorities were careful to avoid interfering with accepted perceptions of the rights of property.

By the middle of the nineteenth century, however, deteriorating conditions in urban areas suggested quite graphically the need for a sustained effort both to regulate the interior conditions of individual dwellings and to improve external sanitation. Contemporaries had clearly come to accept the close connection between high mortality and poor living conditions. Even more than the statistical studies on normal mortality of Villermé, the incidence of cholera dramatized the consequences of poverty and overcrowding. The disease itself was terrifying. A syndrome of vomiting and diarrhea produced dehydration, giving the victims a ghoulish

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Deputies but no action was taken. The government then introduced a bill in December 1891 which had been prepared with the assistance of the Advisory Council on Public Hygiene In 1892, M. Langlet presented a report on this bill to the Chamber Discussions ensued and the Chamber voted in 1893 to approve most of the major articles of the bill. This draft was not discussed in the Senate until 1897 where it underwent serious modifications before its final reading in February 1902.

appearance, and those stricken often died within hours of the onset of the first symptoms.[4] Social classes responded with mutual hostility and suspicion. The poor feared that their wells had been poisoned, while the rich saw the threat of cholera as irrefutable evidence that the lower orders were an insidious, hovering threat to their physical and social well-being.[5] It seemed clear that the infested quarters of the working class constituted a general danger. Victor Considerant wrote in 1848 that:

> The doctors who treated their patients at their homes during the cholera epidemic and ventured into the dens of the poor gave accounts at the time to make one shudder. . . . The rich did speak of the misery of the poor, but it was a thing for pity, not fear; they had no notion of this frightful contagious poverty; the cholera starkly revealed it.[6]

This anxiety, heightened by recent revolutionary upheaval in 1848, produced a social climate receptive to reforms which specifically addressed the problem of cleaning up the pockets of disease and disorder.

It is against this backdrop that the Melun law of 1850 emerged as the first attempt to enforce sanitary standards within the home. In its main provisions, the law established that:

> In every commune where the Municipal Council deems it necessary, it may name a commission charged with investigating and indicating measures indispensable to the sanitary improvement of lodgings and outbuildings which are rented or occupied by others than the proprietor or tenant-for-life. Those buildings are insalubrious which are in a condition which is injurious to the life or health of their inhabitants.

The Unhealthy Dwellings Commission, created by the Municipal Council, was to visit those locations which had been reported as unsanitary, investigate the causes, and file recommendations with the mayor who would notify the interested parties. After a period of a month, during which the landlords could reply, the reports were submitted to the Municipal Council which determined the extent of the required improvements and the length of permissible delays. If the housing could not be repaired and was judged irremediably unsanitary, the Prefectoral Council could prohibit its use as a dwelling. In a situation in which the insalubrity resulted from external and permanent causes, the commune was empowered to expropriate the property for reasons of public health according to the provisions of the law of May 3, 1841.

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[4] Charles E. Rosenberg, *The Cholera Years The United States in 1832, 1849, and 1866* (Chicago University of Chicago Press, 1962), p. 4.

[5] Louis Chevalier, "Le choléra à Paris," *Le choléra La première épidémie du XIX^e siècle*, Louis Chevalier, ed., Bibliothèque de la Révolution de 1848 (La Roche-sur-Yon. Imprimerie Centrale de l'Ouest, 1958), p 15.

[6] Louis Chevalier, *Laboring Classes and Dangerous Classes During the First Half of the Nineteenth Century*, trans Frank Jellinek (New York. Howard Fertig, 1973), p 155.

In spite of both the obvious need for some sanitary reform and the example of recent health and housing legislation in England and Belgium, the French approached the issue with considerable apprehension. Although the legislation of 1850 would serve as a springboard for a highly professional public hygiene movement in the latter decades of the century, in its conception and form, it was intimately tied to humanitarian reform activities of the 1830s and 1840s, especially to those of conservative social Catholicism. Both Anatole de Melun, sponsor of the law, and Henri de Riancey, the bill's reporter in the legislature, belonged to the Société de Saint Vincent-de-Paul and the Société d'Economie charitable, Catholic organizations committed to ameliorating the lot of the poor through a combination of Christian charity and philanthropic paternalism. Essentially the Melun law was conceived of as a "progressive and conservative" measure whereby the privileged classes fulfilled their obligations to their social inferiors in response to an acute material crisis which threatened all of society. Riancey and Melun invoked the studies of Villermé and Blanqui to demonstrate the physical and moral decay of the working population.[7] They spoke of rachitic and scrofulous children, tubercular women, and enfeebled men—"decimated generations"—unable to provide industrial or military manpower. The cities were allegedly propagating a deteriorating race of men who fled their hovels in search of immoral and criminal pastimes and bred new generations who were corrupted from the cradle on. It was the responsibility of the government, according to Riancey, to undertake a series of measures for "general order and public interest" on behalf of the most unfortunate.

But, to allow public administrative personnel into the interior of private dwellings was to challenge cherished beliefs about the inviolability of private property. Opponents of the legislation conjured up menacing images of the creeping absorption of the individual by the State. Proponents of the Melun bill were particularly sensitive to this line of criticism and, in fact, shared the worries of the opposition. In his report on the bill to the legislature, Riancey wrote that:

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[7] L R Villermé, "De la mortalité dans les divers quartiers de la Ville de Paris," *Annales d'hygiène,* 1st ser., 1830, *3.* 294-341, Villermé, *Tableau de l'état physique et moral des ouvriers employés dans les manufactures de coton, de laine et de soie* (Paris, 1840); J A. Blanqui, *Des classes ouvrières en France pendant l'année 1848* (Paris, 1849); *Rapport fait par M Henri de Riancey au nom de la commission d'assistance et de prévoyance sur la proposition de M de Melun (Nord), relative à l'assainissement des logements insalubres, 8 décembre 1849*. The reports and discussions of Melun's bill were reprinted in the *Moniteur universel* and may also be found in Gustave Jourdan, *Législation sur les logements insalubres traité pratique* (Paris, 1879), pp. 159-283.

> the matter is extremely delicate. It raises questions of private rights, of property, of the home, that must be approached with extreme reserve. The independence of the domestic foyer, the free usage, the free disposition of that which belongs to a citizen commands the highest respect; for these are the foundations of society, the first guarantee of human liberty.[8]

He reassured his colleagues further that the framers of the legislation understood that property rights must be protected. He noted that in enforcing the law:

> the paternal authority of the Municipal Council will stagger delays and distribute obligations. Far from wanting to alarm the population, we wish to lighten its burdens little by little, with understanding and with patience. We desire neither to overburden or upset instantaneously its habits, nor even to quarrel openly with its prejudices and routines.[9]

Consequently, sponsors sought to produce a bill which extended existing police powers within carefully circumscribed limits.

It is not surprising, then, that the Melun legislation contained serious loopholes which mirrored the ambivalence of the men who wrote it. Because the law left the initiative for its application to local governing bodies, it was reported at the time of the International Congress of Hygiene of 1878 that in Marseille, Rouen, Lyon, Bordeaux, and Nantes, Unhealthy Dwellings Commissions either no longer existed, or met only sporadically, and that, except in Paris and Lille, the Melun law remained largely a dead letter in France.[10] Even where Commissions were functioning, their powers were narrowly restricted. The actual terms of the law intentionally guarded against a potential "excess of zeal" on the part of the commissioners. Buildings inhabited solely by their proprietors lay outside the jurisdiction of public authorities, while Unhealthy Dwellings Commissions could only deal with conditions inherent in the building itself and remained legally powerless when the unsanitary situation resulted from actions by the tenant.[11] Penalties for noncompliance with the repairs ordered by the Municipal Council were so small that one contemporary critic called them "an incentive to resistance."[12] Ironically, because the law made no provision for the automatic execution of repairs, some landlords did pay token fines rather than carry out the prescribed improvements. Others evacuated their buildings just until the temporary restraining orders expired, only to reopen them again under the same conditions.[13] It is clear that the Melun law challenged the ingenuity of offenders perhaps as much as it prodded their consciences or threatened their pocketbooks.

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[8] Riancey, *Rapport*, in Jourdan, p. 183.

[9] Riancey, *Rapport*, in Jourdan, p. 194.

[10] *Exposition universelle internationale de 1878 à Paris Comptes-rendus sténographiques, n 10, Congrès international d'hygiène tenu à Paris 1-10 août, 1878* (Paris, 1880), p 555.

[11] If, for example, a tenant converted a workshop without windows into a habitation, transforming the use for which the property was originally intended, the resulting health hazard lay outside the authority of

The attempt to conciliate private property while meeting the needs of public hygiene produced both substantive and procedural ambiguities in the application of public health measures. For example, although provisions did exist for the demolition of slum properties for reasons of public health, juries populated largely by the *haute bourgeoisie* tended to award inflated indemnities which made large scale removal financially impractical.[14] Similarly, as late as 1885, a Paris judge maintained that the provision of water in a multi-family dwelling was not a measure which concerned public health, but one which referred, rather, to the "convenience and well-being" of the tenants.[15] While professional hygienists continued to insist upon the importance of water in maintaining sanitary conditions, actual jurisprudence produced contradictory conclusions.

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the Unhealthy Dwellings Commission In an important legal case of November 10, 1868, the final appellate court held that because "the conditions which cause the insalubrity are not created by the proprietor Mme F . . and did not exist when she rented the building, but are produced by the subtenant . . . that it is no longer a matter of an insalubrious dwelling rented out, but of a lodging in which the occupant has made various modifications of his own free will and to his personal convenience; that if these modifications have produced insalubrious conditions, the tenant who must endure them has himself to blame, that in consequence the law of April 13, 1850, cannot be applied " Jourdan, *Législation sur les logements insalubres. traité pratique*, p 331 The courts thus subtly redefined the intent of the housing legislation, choosing to consider it a means to protect tenants against unscrupulous landlords rather than as a more general law to promote public health.

[12] A. J. Martin, "Réforme de la législation sanitaire française," *Congrès international d'hygiène et de démographie à Paris en 1889, Comptes-rendus* (Paris, 1890), pp 376-378.

[13] *Ibid*

[14] In a discussion on the reorganization of French sanitary services at the International Congress of Hygiene and Demography in 1889, Dr. Dargelos raised the familiar complaint that landlords sought expropriation as a favor. The Paris Unhealthy Dwellings Commission had long called for the revision of the expropriation law of May 3, 1841, which permitted landlords to speculate in slum properties For examples of such speculation see Maxime de Camp, *Paris ses organes, ses fonctions et sa vie dans la seconde moitié du XIX^e siècle* (Paris, 1884), v. 6, pp. 255-258 In a typical anecdote of the period, a newly enriched gentlemen is asked: "How have you made your fortune?" He replies simply: "I have been expropriated "

[15] Arthur Raffalovich, *Le logement de l'ouvrier et du pauvre* (Paris, 1887), p. 243.

In the attempt to control the health and safety of new constructions, a prefectoral decree of March 26, 1852, required that, in Paris, builders' plans be filed for approval for those houses constructed on the public roadway. (The decree could be applied to other communes at the discretion of local authorities.) The Unhealthy Dwellings Commission complained repeatedly that because there were neither general construction standards nor inspection procedures to assure that the plans had been followed, within a short period of time, new buildings were as unsanitary as the old.[16] Often the shoddiest constructions were those erected in the open fields on the outskirts of the city or squeezed into the interior of a block, where they escaped even the minimal surveillance provided for in the decree. Matters were further obfuscated by professional jealousies between public health administrative agencies with overlapping jurisdictions—for example, between the Health Council of the Seine which supervised external sanitary conditions and the Unhealthy Dwellings Commission which regulated interior hygiene.[17]

Sanitary legislation, in most cases, entrusted mayors with wide responsibilities for protecting the public health of the commune, but withheld the necessary means to render their power effective. Although the mayor could determine that a sanitary nuisance required remedial attention, a peculiar legal twist prevented him from prescribing the specific remedy.[18] So, for example, when the mayor of Caen ordered the removal of a cesspool situated in a courtyard serving several properties, the Supreme Court of Appeals concluded that there might be a less financially onerous way for the proprietor to control the foul emanations created by the cesspool, and that the order for its elimination constituted "an excess of administrative authority."[19] Mayors were further dependent upon tight-fisted municipal councils to allocate funds for desired programs. In the absence of strong popular commitment, or imminent danger from epidemic disease, sanitary decrees established formal structures without infusing them with real authority. As with the Melun law, it seems that the French approached matters of health regulation with considerable timidity—giving enough power to tranquilize informed opinion while undermining its impact from the start.

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[16] *Rapports généraux sur les travaux de la Commission des logements insalubres*, 1870-76, 1877-83; 1884-89; 1890-92 See especially *Commission des logements insalubres: Rapport sur la salubrité des constructions*, 1880. A.N. F^8 213

[17] Raffalovich, *Le logement de l'ouvrier*, p. 242, Gustave Jourdan, "De la réforme de la loi du 13 avril 1850 concernant les logements insalubres," *Congrès international d'hygiène et de démographie, Comptes-rendus*, 1889, p 385; Alfred Fillassier, *De la détermination des pouvoirs publics en matière d'hygiène* (Paris, 1902). In the *Rapport général sur les travaux de la Commission des logements insalubres* (Paris), 1877-83, the Commission deplored "this annoying antagonism between the two branches of the sanitary administration of the city of Paris [Health Council of the Seine and Unhealthy Dwellings Commission], an antagonism which is as much administrative as scientific and which has often retarded the solution to public health questions."

[18] Pierre Gayot, *La question des logements insalubres et la loi du 15 fevrier 1902 relative à la protection de la santé publique* (Lyon, 1905); Henri Monod, "La législation sanitaire en France," *Les applications sociales de la solidarité, leçons professées à l'École des Hautes Etudes Sociales* (Paris, 1904); A. J. Martin, "Réforme de la législation sanitaire française."

Many of the most obvious inadequacies of existing sanitary legislation derived from an earlier identification of public health with public works—from a period which understood sanitary improvement as the removal of surface filth and offensive smells. Speaking in the 1880s to the Society of Public Medicine and Professional Hygiene, the prominent hygienist Brouardel noted:

> For twenty years, they have extended the length of the sewer system in the city; they have brought in a water supply of improved quality and enlarged quantity; they have opened up new streets through the congested quarters of Paris, they have enlarged old roads . . . and nevertheless, epidemic and contagious diseases exact a toll each year from the population which is ever-increasing.[20]

In contrast, plans to reform public health laws in the 1880s and 1890s were more comprehensive. They addressed simultaneously the issues of the sanitary condition of the commune, the healthfulness of private housing, and personal hygiene. The most important factor in redirecting attention from street improvements was, of course, the growing acceptance of the germ theory of disease which significantly enhanced the clout wielded by hygienists interested in disinfection, vaccination, and inspection. The literature of the period began to be filled with references to "microorganisms" and "pathogenic germs," while the squalid quarters of the poor were described specifically as "microbe factories" manufacturing moral and physical decay. Henri Monod, director of Public Assistance and Hygiene in Paris, defined the function of public health as the destruction of germs and the maintenance of an environment inhospitable to their propagation.[21] He argued that not just pestilential disease but all contagious disease could disappear. Although legislation existed for instituting protective measures against the relatively exotic illnesses of yellow fever, cholera, and the plague, comparable powers in the face of common contagious diseases were lacking. In the words of Monod, the continued incidence of smallpox was "the shame of a civilized society," a national humiliation,[22] yet vaccination against the disease was not obligatory, nor was the reporting of contagious illness an automatic or regular practice.[23]

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[19] Martin, "Réforme de la législation sanitaire française," p. 871.

[20] Brouardel, quoted in François Roques, *Les logements insalubres· la loi de 1902, le casier sanitaire des maisons* (Toulouse, 1906).

[21] Monod, "La législation sanitaire," p. 122.

The problem of disinfection and tuberculosis received particular attention. Brouardel noted in 1898 that while periodic scourges such as cholera shook the population from its accustomed inertia and prompted immediate preventive measures, the number of cholera deaths in the two years 1854-55 (145,000) was a little less than the annual tuberculosis mortality.[24] The somber story of a succession of young men selling books in dark, unventilated, humid rooms, each becoming tubercular in turn, each dying of the disease, became a prototype which enjoyed monotonous repetition in the professional journals and monographs of the period.[25]

Throughout the 1880s and 1890s, the stories of unnecessary deaths from contagious disease were a grim litany attesting, in part, to the tenacity of popular resistance to medical interference. Hygienists, however, were well armed with statistical evidence to which the government was particularly sensitive. Neither hygienists nor politicians could ignore the differential mortality of the various quarters and *arrondissements* of Paris. Monod reported, for example, that in the wealthy quarter, Champs Elysées, tuberculosis mortality was 10 per 10,000 population, while the working class quarter Plaisance sustained a mortality rate of 104 per 10,000[26]—a veritable "social scandal" which he alleged could be improved with more stringent sanitary regulation. The government did respond to this appeal. As a first step, public hygiene services were transferred in 1889 from the Ministry of Agriculture and Commerce to the Department of the Interior in tacit acknowledgment that the control of disease could no longer be seen as the defense of the national terrain against exotic illnesses imported from abroad, but was rather closely related to local sanitary conditions.[27]

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[22] *Ibid*, p 140.

[23] The Paris Health Council complained further that the supervision of disinfections following contagious illness was inadequate. The role of the Prefect of Police was limited to furnishing the appropriate equipment at the request of the interested parties He could only take the word of the concierge or tenants that the disinfection had, in fact, been performed. *Rapport général sur les travaux de la Commission des logements insalubres*, (Paris), 1884-89.

[24] P. Brouardel, "Le logement insalubre," *Annales d'hygiène*, 3rd ser., 1898, *39* 101

[25] See for example E. Vallin, "La location des maisons insalubres et la responsabilité des propriétaires," *Revue d'hygiène*, 1891, *13*· 901-907; *Bulletin de la Société de médecine publique et d'hygiène professionnelle*, 1890, *13*· 382-390, E Cacheux, "L'influence du logement sur la santé des habitants d'une grande ville," *Huitième Congrès international d'hygiène et de démographie, Comptes-rendus, 1894* (Budapest, 1896), *4* 526-531, Cacheux, "Influence exercée sur la santé et sur la mortalité par les conditions spéciales des logements dans les grandes villes," *Huitième Congrès, Comptes-rendus, 1894, 7* 418-423.

[26] Monod, "La législation sanitaire," p. 158.

But perhaps more important than the growing aggressiveness and expanded activities of hygienists was the timing of their campaign. The government's interest in contagious disease was magnified at this time by its increasing preoccupation with issues of national strength. The hygienists' claims to be able to provide more effective control of common diseases coincided with French fears of losing status in the international arena—fears which focused on the might of the military and the size of the population. It was not fortuitous that public health reformers gained greater access to the government at a time when national anxieties were typically expressed in the biological imagery of organic degeneration. Brouardel touched a raw nerve when he observed to the Senate that the French had made the epidemiological discoveries but it was the neighboring countries which benefited.[28] Discussions of the proposed legislation of 1902 repeatedly returned to the theme of military strength. The members of the Senate were told that "germs were more lethal to the army than the bullets of the enemy."[29] Monod noted tellingly that during the Franco-Prussian War, the German army lost less than 400 soldiers to smallpox in contrast to the French figure of 23,000.[30] Reflecting similar anxieties, Jules Simon, reformer and politician, wrote in 1892 that a member of the German parliament spoke against increases in the military budget because "we [Germans] do not have to make these sacrifices when the French lose a battle every year."[31] When hygienists argued further that uniform health regulations for all of France were necessary because recruits from rural areas with poor sanitary controls could infect an entire unit, their words fell on receptive ears.

Similarly, the falling growth rate of the population added to the urgency of large-scale public health reform. Contemporaries viewed the decline in the birth rate as a warning signal pointing to national decadence. Because it was more difficult to engineer a rise in the birth rate, the conservation of lives seemed the necessary corrective. Brouardel noted that most preventable illnesses affected those under 25 who had not yet formed families, thus reducing both the actual population and the chances for demographic recovery.[32]

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[27] *Rapport général sur les travaux de la Commission des logements insalubres* (Paris), 1884-89.

[28] *Journal Officiel, Débats parlementaires, Sénat,* 12 février 1897.

[29] *Ibid*

[30] *Journal Officiel, Débats parlementaires, Sénat,* 9 février 1897, Monod, "La législation sanitaire," p 140

[31] Jules Simon, *De l'initiative privée et de l'État en matière de réformes sociales* (Paris, 1892).

It seems clear, then, that by the mid-1880s, the government had identified the health of the population with its national security concerns and was consequently willing to consider a more active involvement in sanitary regulation. This identification both reflected and anticipated a subtle shift in official rhetoric away from the ideology of laissez-faire liberalism to a style and program more in keeping with the needs of a mass society. In the face of mounting pressure from organized socialism, the individualism and the philanthropic paternalism of the established classes became increasingly inappropriate. More and more, the concept of "solidarism" crept into official pronouncements and became the characteristic social philosophy of the Third Republic. It provided the means to steal the thunder from the socialists while justifying a limited, but legitimate, extension of the powers of the State.[33] Solidarism emphasized the interdependence of all members of society and used the vocabulary of contractual obligation to demonstrate that each individual was responsible for the well-being of all and must, therefore, be willing to sacrifice some elements of personal liberty in the interest of the community. Public health became a quintessential example of the practical application of solidarism.

Hygienists urged that collective responsibility for health replace the "funereal solidarity" which then prevailed. Again, the socio-political objectives of public officials and the professional goals of hygienists converged to provide the momentum for more effective health legislation. Hygienists spoke of public health as a "work of fraternal solidarity," and of their new knowledge of the genesis of disease as "laws of sanitary solidarity."[34] They argued that the "sad right to suicide" permitted by the Melun law which exempted the homeowner living without tenants from public supervision could no longer be tolerated. The same principle which prevented an individual from stockpiling dynamite in his home applied to an insalubrious dwelling—the threat to the community superseded individual property rights. Monod maintained that public authorities must guarantee that the general interest is not compromised by the ignorance, negligence, or avarice of the few.[35] Langlet, the reporter for the proposed public health legislation, confirmed the government's interest in assuming greater responsibilities for public health. He observed that collective hygiene was not possible except through the intervention of the collectivity.[36]

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[32] *Journal Officiel, Débats parlementaires, Chambre des Députés*, 26 juin 1893; *Débats parlementaires, Sénat*, 9 février 1897.

[33] J. E S. Hayward, "The official social philosophy of the French Third Republic: Leon Bourgeois and solidarism," *Int Rev. Soc Hist* , 1961, *6* 19-48; Theodore Zeldin, *France 1848-1945* (Oxford: Clarendon Press, 1973), pp 640-682, P Budin, C. Gide et al., *Les applications sociales de la solidarité, leçons professées à l'École des Hautes Études Sociales* (Paris, 1904)

[34] Roques, *Les logements insalubres*, p. 26.

In spite of a growing consensus on the need for new legislation, it took 20 years for the bill to emerge from the legislature as law. To follow its path through committee reports and legislative sessions is to witness a case study of institutional inertia which mandates default as the inevitable product of indefinite delays. However, in these prolonged debates, it is also possible to identify the most significant resistance in French society to a modernized public health administration. Opposition, which was largely from the Senate, focused broadly on two issues: the problem of political versus professional jurisdiction in matters of health; and the conflict between rights of privacy and the public interest.

Hygienists sought, in general, to transfer power on health issues from political bodies—that is, from the Municipal Council and the regular administrative courts—to competent professional bodies which previously had exercised only advisory functions. Because appeals courts tended to request reports from experts before making judgments in sanitary matters, the investigatory process was essentially duplicated, and improvements were delayed while offenders gained extended periods of grace as the case dragged through the legal system, availing itself of all possible procedural delays. The draft of the law passed by the Chamber of Deputies established a two-tiered system of sanitary commissions endowed with full appellate authority, preserving the right to appeal to the regular administrative courts only on technical legal issues.[37] The Senate, however, balked. Several Senators decried the new "tyranny of hygiene" which turned private property over to hygienists.[38] Instead, they insisted upon retaining final authority in ordinary civil tribunals. Similarly, whereas the Chamber bill called for the creation of a new service of inspectors, responsible to commissions of hygiene and paid by the State, to insure that prescribed improvements had, in fact, been carried out, the Senate removed the provision for inspection. Senators feared conflicts between local communal authorities and agents of the State. They conjured up dramatic images of a sinister pattern of excessive centralization in which an inspection service was one more step toward the abyss. With cries of approval from the right, M. Volland prophesied in the Senate that

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[35] *Journal Officiel, Débats parlementaires, Sénat,* 9 février 1897

[36] *Journal Officiel, Débats parlementaires, Chambre des Députés,* 26 juin 1893

[37] *Ibid.*

[38] *Journal Officiel, Débats parlementaires, Sénat,* 4 février 1897

> . . . by the law of hygiene that you consider today, you will have armed the representatives of the central power with the right to penetrate when they wish, on an order from Paris, day or night, into the interior of our homes; to bring, in defiance of all the guarantees prescribed by the criminal code, into the interior of our homes their war on microbes, and under the pretext of the search for a germ or the execution of a disinfection, to open our most intimate possessions and our most secret drawers. This, in fact, is what will happen.[39]

A colleague echoed his warning:

> Adieu to intimate expressions! At the very moment when two spouses converse more or less tenderly, the sanitary inspector will burst into their home to make a report.[40]

In the midst of general hilarity, a Senator from the left sardonically observed that "love does not exclude hygiene."[41] Fear of functionaries prevailed, and the new legislation emerged without inspectors.

A similar scenario accompanied attempts in the early drafts of the 1902 law to require the submission of building plans for approval and the issuance of permits for occupation of a new building in all communes with more than 5,000 population. The Senate again raised the cry of excessive and inappropriate regulation from the center. The Comte de Maillé quipped: "Will one be able to dress oneself without permission from the government?" Proponents argued that it was indeed less costly and troublesome to prevent unsanitary conditions from arising by examining building plans before construction. The Senators' sense of the priority of private property could not be set aside, however; the law eliminated final inspection of new constructions and required building permits only in those communes with a population greater than 20,000.

The final version of the bill, then, was considerably less comprehensive than the original draft. The law of 1902 represented a series of small improvements in the organization of health services and in the enforcement of sanitary standards. Doctors, health officers, and midwives were required to report contagious illnesses, and smallpox vaccination became mandatory. All departments were divided into sanitary wards, each under the supervision of a sanitary commission. If the death rate in a commune exceeded the average mortality for all of France for three years, the Prefect was required to conduct an investigation and could order, if necessary, the execution of the necessary improvements. At the same time, the 1902 legislation closed the most glaring loopholes of the Melun law. Mayors were given enlarged powers to ensure the healthfulness of the commune: they had jurisdiction over all houses, even those inhabited solely by the proprietor and those not aligning the public way; they could order that improvements be executed at the landlord's expense; they could act even in the absence of a direct complaint.[42] The general principles embodied in all of these provisions attracted a sufficient consensus to become law. The inadequacy of the 1850 legislation had, after all, been apparent almost from the time it was written.

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[39] *Journal Officiel, Débats parlementaires, Sénat,* 12 février 1897

[40] M. Treille, *Journal Officiel, Débats parlementaires, Sénat,* 12 février 1897

[41] *Journal Officiel, Débats parlementaires, Sénat,* 12 février 1897.

But the impact of the new law was seriously compromised by the fundamental reluctance of the legislators to tamper too extensively with the existing balance between private rights and public interest and by the fear of allowing power to escape from ordinary political channels. Hygienists were quick to point out that the excessive timidity of the politicians had emasculated the new legislation—that beneath the trappings of progress, France had actually backed in to the twentieth century. They argued that to give elected mayors enforcement powers in sanitary matters was to create an essential paradox at the core of health legislation.[43] Mayors would have to be "veritable heroes" to apply rigorously an annoying and potentially costly regulation to the constituency which elected them.[44] It was precisely the mayors who could not assume executive responsibility. One commentator wrote that in this situation:

> Authority collides with resistance from powerful interests. Placed between the pressing exigencies of public health and the fiercer and more combative financial interests of proprietors, they have everywhere established an unfortunate compromise which only imperfectly satisfies property owners and has the aura of a challenge defiantly flung at hygiene.[45]

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[42] On May 30, 1903, the Minister of the Interior issued a circular defining the scope of a mayor's responsibility for the public health of the commune These guidelines were to provide a model for communes in which mayors had previously had little experience in health administration. The topics covered included the salubrity of dwellings, the prevention of contagious disease, general sanitary standards, and penalties.

[43] Henri Turot and Henri Bellamy, *Le surpeuplement et les habitations à bon marché* (Paris, 1907), p 63.

[44] Paul Brousse, *Bulletin municipal de la Ville de Paris*, n 5, March 1903, 935.

[45] Turot, *Le surpeuplement*, p. 63.

Yet, the legislators could not bring themselves to either give sanitary commissions executive authority or to establish an independent, paid professional inspection service. By leaving the final word with elected local officials, the law preserved the freedom not to act.

The problem of clearing out blighted areas remained unresolved as well. While the law authorized the expropriation of buildings in irreparable condition, the mayor who chose to exercise that power had to wait for the Municipal Council to appropriate the necessary funds. The law did not reform the anachronistic compensation procedures so that site value only was paid. Thus, the acquisition and demolition of slum properties was still, in effect, a practical impossibility.[46]

The reticence of the legislators mirrored growing popular suspicions of the "tyranny of hygiene." Not unexpectedly, as hygienists gained in power and influence, organized resistance to their intrusions became in turn better coordinated as proprietors mobilized to protect their financial interests. The early reports of the Paris Unhealthy Dwellings Commission indicate that landlords offered little opposition to the recommended repairs, in part because property values were rising so rapidly that expenditures were soon recouped, and in part, because the administration was generous in granting delays.[47] The mood began to change at the end of the Second Empire, with resistance gaining momentum during the final two decades of the century. The 1866-69 reports refer to "the ever-growing ardor with which proprietors attack and dispute even the principles of the law of 1850,"[48] and similarly, the 1872-76 reports note "a little more resistance" on the part of proprietors.[49] According to Hudelo, proprietors and building entrepreneurs voiced "strong resistance" to the regulations for new constructions proposed by the Unhealthy Dwellings Commission in 1880 claiming that such detailed prescriptions constituted an "infringement on the free exercise of their property" and made new buildings too costly.[50] In the reports of 1884-89, the Commission attributed the growing number of appeals and refusals to comply not to the fact that more stringent demands were being made, but rather, to the emergence of *agents provocateurs* who, advertising their services in "cleverly worded circulars," promised to obtain an attenuation or an annulment of the prescriptions or at least to secure delays in their execution.[51] The Commission claimed that in most cases, the proprietors failed in the end to reverse the judgment, but were able to create protracted delays.

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[46] Turot, *Le surpeuplement*, pp 57-59; Roques, *Les logements insalubres*, p. 69. In 1904, Jules Siegfried brought in a bill to reform compensation procedures In 1910 the bill reached the Senate, but by the outbreak of World War I, no final action had been taken Siegfried noted the example of an English law of 1890 which made it easier for the municipality to clear out slums. It stipulated that, while expropriations are made according to the building's revenue, excess rents beyond the normal capacity of the building, as well as the costs of repairing the property, must be subtracted from the final indemnity payment. Siegfried, "Les habitations à bon marché," in *Applications sociales de la solidarité*, pp. 215-236.

[47] *Rapports généraux sur les travaux de la Commission des logements insalubres* (Paris), 1850-51; 1852-56, 1857-59, 1860-61; 1862-65.

[48] *Rapports généraux sur les travaux* (Paris), 1866-69

[49] *Rapports généraux sur les travaux* (Paris), 1872-76.

Issues of privacy evoked comparable opposition to the activities of sanitary personnel. This was reinforced, somewhat ironically, by a segment of the medical profession. Discussions of the law on the declaration of contagious diseases brought these anxieties to the fore. The original draft of the 1902 legislation had required the reporting of infectious illness by doctors, health officers, and midwives, and, in their absence, by heads of families, hotel and lodging-house keepers, and those responsible for treating the sick. The Senate limited responsibility to the doctor, health officer, and midwife, claiming that there was something "inhuman" about a father having to declare the illness of his child. It is apparent that the stigma attached to contagious disease generated considerable anxiety. Monod observed that the new law would be effective only if doctors agreed to comply with its provisions, as previously they had resisted making declarations due to some sensitivity on their parts to the question of professional secrecy, but largely out of fear of alienating their clientele.[52] A head-of-household resistant to declaration would typically argue: "You will injure my business, my sales, my credit. If you persist, we will find another doctor."

Tuberculosis was omitted from the list of illnesses requiring mandatory declaration because of the heightened emotions which surrounded the disease. Dr. Josias reported to the Academy of Medicine that the consequences of the declaration would be extremely harmful to the patient without producing a compensatory sanitary guarantee:

> It is as if, by the declaration, the patient is put on the Index; the frequent disinfections of his home will brand him as a public danger; he will not be able to find work in common; sometimes, in the face of the fears of his neighbors, he may not be

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[50] Hudelo, "Le nouveau règlement sur les constructions neuves dans Paris," *Annales d'hygiène*, 3rd ser., 1882, 7: 306-7

[51] *Rapports généraux sur les travaux* (Paris), 1884-89.

[52] Monod, "La législation sanitaire," pp. 130-31

> able to lodge himself; misery and moral distress will exacerbate his illness; and, in spite of all this, it is not even possible to protect others from contagion.[53]

Hygienists complained, on the other hand, that the doctor had become the accomplice of his patients, even to the point of making voluntary errors in diagnosis.[54]

Private physicians thus joined the general population and self-interested landlords in resisting hygienic measures which were annoying and costly, destructive to both privacy and property. The law on the declaration of transmissible illness had no more bitter adversaries than medical practitioners. This anomalous situation did not, however, surprise hygienists who had long been anxious to establish the independence of their profession from the medical profession in general. Dr. Vallin issued a representative statement to this effect in the *Revue de médecine légale* in which he called for "a new breed of medical specialists" concentrating on hygiene.[55] He argued that one could not be a medical practitioner and a hygienist at the same time, that "the exercise of medicine is incompatible with the scientific and practical study of public hygiene," because the practitioner was, by definition, more interested in therapeutics than in prevention, and saw hygienic measures as potentially annoying limitations on his professional freedom.

It was, then, a self-conscious group of professional hygienists who, in the final decades of the century, infused the public health movement with momentum and direction, and mounted an intense lobbying effort to enlarge the jurisdiction of public health professionals and to produce effective guidelines, codes, and procedures in matters of external and internal sanitation. Significantly, the moralizing which characterized the literature of hygiene of the 1840s-1870s largely disappeared; instead, hygienic measures were justified in the context of a program to wipe out "microbe factories" and to control the spread of communicable disease.

But, in the end, the priorities of the legislators determined the parameters within which reform could occur. Where medical evidence neatly coincided with well articulated national objectives, new legislation was forthcoming. Direct ties could be drawn between concern over the decline of the birth rate and worries about national strength on the one hand, and the mandatory reporting of contagious disease and the requirement for

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[53] *Ibid* , p 126.

[54] E Vallin, "Hygiènistes et médecins," *Revue de médecine légale*, 1902, *10*. 222

[55] P Bouloumié, "La déclaration des maladies contagieuses—épidémiques et le secret médical," *Bulletin de la Société de médecine publique et d'hygiène professionelle*, 1890, *13*. 383-91.

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smallpox vaccination on the other. A half century of experience with the Melun law had made it clear, as well, that speedier processes and more stringent penalties were in order. And there the legislators stopped. Their reluctance to further impinge upon private property or to convey authority outside the usual channels mirrored a significant strand of conservative opinion which saw with alarm the growing scope of State responsibilities. The economist Leroy-Beaulieu succinctly summarized this perspective. He warned that an excess of abstention involved fewer perils than an excess of intrusion, that doctors and philanthropists were, after all, "by nature proud spirits who in all times experienced an inclination to tyranny and to the sin of pride." From this point of view, "a nation which would deliver itself to a medical academy would suffer in its liberty without sufficient compensation in health or longevity." One of the perils of modern society, according to Leroy-Beaulieu, was the domination of specialists. And, he continued, "specialism and fanaticism usually go together."[56] These fears could not easily be overridden. In the passage of the law of 1902, we see both the results of a concerted effort, orchestrated by professional hygienists, to update public health regulation, and, at the same time, the limits beyond which the French would not go.

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[56] Paul Leroy-Beaulieu, *L'État moderne et ses fonctions* (Paris, 1891), pp 97, 387.

MEDICINE AGAINST MALTHUS: FRANÇOIS MÉLIER ON THE RELATION BETWEEN SUBSISTENCE AND MORTALITY (1843)*

WILLIAM COLEMAN

Thomas Malthus saw but one socially acceptable and efficacious solution to the problem of human reproduction. When unrestrained, reproduction quickly overwhelmed the more slowly growing means of subsistence available to a given society. In this situation vice and misery, each eventuating in untold suffering and elevated mortality, posed an unpleasant and, to rational and determined men, an unnecessary check to population increase. In their eyes moral restraint, meaning principally delayed or even refused marriage, provided a beneficent solution to the problem. Moral restraint, moreover, emphasized the fact that man can and should accept responsibility for his continuing biological and social well-being.

The dilemma which Malthus believed mankind faced was that, although men might regulate their own numbers and thus reduce one side of the population-subsistence formula, these same men came up against an unyielding "law of nature" when they aspired to increase the other or subsistence side of the formula. Land was a limited good and quality agricultural land was in even shorter supply. The most vigorous effort would in time produce only a diminishing return from this determinate resource, yet human expectations and thus population continued to grow. The operation of the truly coercive Malthusian checks thereby became inevitable. Society or, more commonly, the least favored orders of society, was cast down, destitution ensued, mortality increased and individual happiness and social harmony were destroyed.[1] Malthus' analysis was pessimistic, drawing hope only from the uncertain promise of widespread

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[1] The case for the inevitability of such checks is stated with simplicity and force by Malthus in *A Summary View of the Principles of Population*, 1830, reprinted in T R. Malthus, *An Essay on the Principle of Population and A Summary View of the Principles of Population*, ed. A Flew (Harmondsworth: Penguin, 1976), pp 223-243.

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practice of moral restraint. Human initiative, the improving spirit, was allowed little scope in this formulation of the relation between population and subsistence. Political economy thus construed seemed a harsh science. It offered small prospect of improving man's temporal condition, put down its critics by a seemingly final appeal to inviolable laws of nature and shifted responsibility away from the collectivity and to the individual.

The reaction to Malthus was immediate and diverse. In France the extreme Malthusian position found only limited favor, French political economists (*économistes*) tending to be more optimistic than their English counterparts.[2] Often eschewing the severe deductive style of the latter, French commentators on the population question were willing to consider what had in fact happened and what was occurring in the world about them, thus placing lesser credence in the seemingly necessary and usually dismal conclusions reached by economic enthusiasts across the Channel. French physicians, notably the many given to forthright and sympathetic consideration of the principles of political economy, vigorously joined the Malthusian debate. Upon assaying the shifting relation between mortality and means of subsistence, François Mélier, a leader in the second generation of French hygienists, decided against Malthus and thereby exhibited how medicine, that is, the nascent discipline of public health, might effectively lend its authority to political decision-making and consoling social philosophy. Mélier optimistically spoke for progress and based his claims not on abstract theory but on the lesson to be learned from socioeconomic improvements achieved within the past few generations. That lesson was taught by hygienic inquiry exploiting the numerical method.

Born in the Charente on 14 July 1798, Mélier received his medical training in Limoges and Paris, gaining the doctorate from the latter faculty in 1823.[3] Until at least 1850 he earned his living principally as a medical practitioner, although an interest in public medicine had manifested itself much earlier. His major contribution to medicine was the identification of inflammation of the vermiform appendix as the probable source of more general distress in the cecal region and the proposal (long ignored) of surgical removal of the inflamed appendix as the treatment of choice.[4]

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[2] J. J. Spengler, "French population theory since 1800, I," *J Polit. Econ* , 1936, *44* 577-766, reviews the many conflicting positions adopted Full expression of the *économiste's* careful but hopeful reading of Malthus is offered by Joseph Garnier, "Population," in Charles Coquelin and G. U. Guillaumin, eds., *Dictionnaire de l'économie politique contentant l'exposition des principes de la science etc* , 2 vols (Paris: Guillaumin, 1852-1853), 2 382-402.

[3] J. Bergeron, "Eloge de M. Mélier," *Mémoires de l'Académie nationale de médicine*, 1888, *36* 1-30

[4] F Mélier, "Mémoire et observations sur quelques maladies de l'appendice coecal," *J gén. de méd. chir. pharm.*, 1827, *100* 317-345.

Quite early in his career Mélier offered one in a series of several courses on hygiene held at the famous Athénée de Paris, an important institution for the wide dissemination of current medical and scientific information. His course of 1827-1828 was followed the next year by that of Louis René Villermé, hygienist *extraordinaire.*

After 1840 Mélier pursued ever more actively a career in public health.[5] His studies of the condition of tobacco workers and the circumstances surrounding the solar production of marine salt are classics in industrial hygiene.[6] Probably his most remarkable investigation, a model of epidemiological inquiry, dealt with the outbreak of yellow fever on the docks and in the hinterland of Saint-Nazaire. This study was published a few years before his death in 1866.[7] In these last years Mélier also assumed various official responsibilities. Most important among these was the position of General Inspector of Sanitary Services to the central French government (1851). In this role he served as principal advisor to the government in all matters of national hygienic concern and also convened the First International Sanitary Conference, held in Paris in 1851.[8]

Mélier displayed a special talent for the assemblage of data and extraction of its most comprehensive implications. This talent was splendidly exhibited by an essay published in 1843 and based upon remarks offered years before at the Athénée. His essay dealt, as its title indicates, with the relation between means of subsistence and human morbidity and mortality, and in it Malthus and the pessimistic school of political economy were put to the test and found wanting.[9] Mélier deliberately spoke as an *économiste.* He claimed that already in 1827 he had come to realize that medicine "no longer applied [only] to the individual but to the population" at large and from this concluded that the healing art, in addition to presenting many other laudable features, was "a veritable social science."[10] A definition was thus in order:

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[5] In Mélier's lifetime French usage had begun to settle on *hygiène publique* as the proper term for the many subjects embraced by the contemporary English expression public health. *Hygiène publique* permits my use of the adjectival form "hygienic" to characterize these subjects; context will then disclose whether hygienic refers to the public domain (such is the case, of course, in the present essay) or to personal and domestic matters

[6] F Mélier, "De la santé des ouvriers employés dans les manufactures de tabac," *Mémoires de l'Academie royale de médecine,* 1846, *12:* 604-648, "Rapport sur les marais salants," *ibid.,* 1847, *13.* 611-706.

[7] F. Mélier, "Relation de la fièvre jaune survenue à Saint-Nazaire en 1861," *Mémoires de l'Académie impériale de médecine,* 1863, *26* 1-223; also separately published (Paris Baillière, 1863), 280 pp

[8] N. Howard-Jones, *The Scientific Background of the International Sanitary Conferences, 1851-1938* (Geneva: W.H.O., 1975), pp. 12-16

[9] F Mélier, "Etudes sur les subsistances envisagées dans leurs rapports avec les maladies et la mortalité," *Mémoires de l'Académie royale de médecine,* 1843, *10* 170-205

> *Public* or *political* medicine . . . is that science which studies how populations [of men] are formed, distributed and destroyed (*se consomment*), just as political economy is the science which explains how wealth is formed, distributed and consumed.[11]

Jean Baptiste Say was cited in this context. Say had introduced the rubrics "production," "distribution," and "consumption" as devices by which to provide greater clarity and rigor for the systematic exposition of Adam Smith's notions regarding the wealth of nations. Say's immensely popular *Traité d'économie politique* served as the basic introductory text on the subject for over half a century in France and also abroad and it offered many hygienists a vocabulary and a congenial analytical framework for pursuing their own special studies.[12] In this manner, among others, political economy and the concerns of public health came into intimate contact.[13] Mélier in 1843 sought to deal with the production and consumption of men; he found—it was no surprise—that direct comparison with the production and consumption of wheat, then of bread was both illuminating and valid.

Mélier emphasized that hygienic investigation required the *méthode d'analyse,* numerical reasoning and the pursuit of *rapports,* in particular the relationship between environing conditions and vital phenomena. This outlook and these terms betray his close affinity to the continuing tradition of the *Idéologues,* whose influence proved especially enduring in the related domains of political economy, natural science and medicine.[14] At issue to Mélier was a special relationship, that between means of subsistence and mortality, and this in turn was also of particular concern to the Academy of Medicine (Mélier had submitted his essay to the Academy as part of his candidacy for election) whose foundation and constitution committed its members to collective review of all matters pertaining to public health. His study of 1843 took the form, moreover, of seeking such "rules" as might govern the sought-after relationship. The very act of discovering these rules appeared to translate the entire endeavor to the level of truly general, thus scientific discourse. The essay thus served as exemplification of sound hygienic investigatory method as well as offering a seemingly decisive counter-assault upon the pessimistic outlook of the Malthusian economists.

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[10] F Mélier, *Candidature à l'Académie de médecine Titres de M. Mélier* (Paris: no publ., 1841), p 3, Mélier, "Etudes," p. 170 These words are largely taken from the Prospectus to the *cours* at the Athénée of 1827-1828, as reprinted in *Titres de M. Mélier* Hippolyte Dussard, editor of the *économistes'* principal propaganda machine, the *Journal des économistes,* which immediately reprinted Mélier's "Etudes," noted that the memoir, although "read to the Academy of medicine, [is] a study in political economy" and therefore deserving of its expanded audience· Dussard, *Journal des économistes,* 1843, *5* 276

[11] Mélier, "Etudes," pp 170, 171

[12] See, for example, J. B Say, *Traité d'économie politique, ou simple exposition de la manière dont se forment, se distribuent et se consomment les richesses,* 7th ed (Paris. Guillaumin, 1860), the first edition was published in 1803. Say's role in melding political economy and *Idéologie* into "social science" is stressed by Sergio Moravia, *Il pensiero degli Idéologues· Scienza e filosofia in Francia (1780-1815)* (Florence La Nuova Italia, 1974), pp 775-790 Indispensable is Edgard Allix, "La méthode et la conception de l'économie politique de J -B Say," *Rev d'hist econ soc* , 1911, *4.* 321-360.

[13] This meeting is the subject of my larger study, nearing completion, entitled *Public Health and Political Economy The Ideology of Sociomedical Investigation in Early Industrial France*

[14] See Moravia, *Pensiero* Moravia emphasizes the continuity of thought across the Revolution and turn of the century, a continuity which, it may be added, may be followed well beyond 1815. See also Emmet Kennedy, "'Ideology' from Destutt de Tracy to Marx," *J Hist. Ideas,* 1979, *40* 353-368

Malthus was not, of course, alone in contemplating the simultaneous movement of or, if one chose to be less cautious, causal connection between mortality and availability/price of the means of subsistence. Mélier asserted that Messance had been the first to envisage the subject in a causal manner and it was from the latter's well-known *Recherches sur la population* (1766) that Mélier drew data for establishing the vital experience of different eighteenth-century populations.[15] This experience was then placed in conjunction with contemporary price series (drawn from government files) for wheat. A basis for comparison was thereby established. Mélier would show that the price of the essential foodstuff, a realistic measure of its "availability" to persons of varying economic condition, was in the eighteenth century accompanied by sharp changes in mortality, whereas such price changes lost this attribute in later decades. F. J. Double, the Academy's referee for Mélier's contribution, stated cogently the candidate's essential message. His "result has always been the same. As we advance towards the present age the difference in mortality, when placed in comparison with [contemporary] differences in the price of wheat, diminishes both progressively and in a quite perceptible manner. The excess of deaths in years of dearness becomes less and less important."[16]

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[15] Messance, *Recherches sur la population des généralités d'Auvergne, de Lyon, de Rouen et de quelques provinces et villes du royaume, avec des réflexions sur la valeur de bled tant en France qu'en Angleterre depuis 1674 à 1764* (Paris, 1766). The life, like the Christian name of Messance, remains a mystery see J J. Spengler, "Messance founder of French demography," *Human Biology*, 1940, *12* 77-94, esp 77, n 2. Messance's work was part of rapidly emerging and substantial concern for the broader parameters of populationism in eighteenth-century France; see William Coleman, "L'hygiène et l'état selon Montyon," abridg and trans J Guillerme, *Dix-huitième siècle*, 1977, *9*: 101-108, to be published elsewhere in expanded form as "Inventing demography Montyon on hygiene and the state."

[16] F. J Double, "Rapport sur une mémoire de M. Mélier," *Bulletin de l'Académie royale de médecine*, 1841-1842, *7:* 218-219.

The heart of Mélier's *Etudes* is found in the twenty-two appended tables. Here are presented comparative figures for the conjunction and separation of wheat (or bread) prices and mortality (and, in certain cases, morbidity) in eighteenth- and nineteenth-century Paris, the Hôtel-Dieu de Paris, and France. As was typical of users of the numerical method, Mélier placed greatest weight upon selected extreme cases. This was a convenient means of avoiding the inevitable problems posed by inconclusive figures and it also served to circumvent the challenge that the correlations espied might well have been due to chance.[17] Mélier compared the spread of two sets of figures. The first set, taken from Messance, represented prices, mortality and, in the Hôtel-Dieu, morbidity over a ninety-year period ending in 1764. Table I presents average figures for two nonconsecutive four-year periods in the city of Paris.

TABLE I[18]

Extremes of mortality, Paris, eighteenth century

High annual mortality (20895) associated with high price (19 liv. 1 sol 3 den./setier)
Low annual mortality (16859) associated with low price (14 liv. 18 sols 5 den./setier)

(Four selected years: high mortality, 1753, 1754, 1755, 1757; low mortality, 1745, 1745, 1751, 1756, average values; grain prices)

Data from the great municipal hospital, the Hôtel-Dieu, permitted inclusion of shifting morbidity as well as mortality (Table II). Since the Hôtel-Dieu, like most hospitals and *hospices* of the old regime, was the sanctuary of the needy or desperate poor and was avoided if possible by all others, its vital experience no doubt quickly reflected changing external economic conditions.

TABLE II[19]

Extremes of mortality and morbidity, Hôtel-Dieu de Paris

High mortality (5140) high morbidity (23696)	associated with high price (18 liv. 15 sols 7 den./setier)
low mortality (3925) low morbidity (17040)	associated with low price (13 liv. 10 sols 9 den./setier)

(four selected years: high mortality and morbidity, 1753, 1754, 1760, 1763; low mortality and morbidity, 1744, 1745, 1746, 1747; average values; grain prices)

[17] Shortcomings in Messance's and more recent data were legion and were admitted. No effort, however, was made to correct them (a probably impossible task) and, again typical of the Parisian numerical

These average figures for extreme years, as well as much of the other data in Mélier's tables 1-10, generally confirmed the long-standing impression that higher grain prices elevated morbidity and mortality.[20]

When, however, similar data for the nineteenth century were marshaled and then compared with the previous era a startling disjunction became evident. Death (morbidity data was not presented) no longer seemed to follow price; modern civilization appeared to have liberated man, at least the Frenchman, from extreme dependence upon his bread. This conclusion appeared inescapably to follow from the figures presented in Tables III and IV.

TABLE III[21]

Extremes of mortality, Paris, nineteenth century

Low annual mortality (23237) associated with low price (56.18 fr./2 kilo.)
High annual mortality (25245) *no longer* associated with high price (83.19 fr./2 kilo.)

(four selected years: high mortality, 1828, 1829, 1831, 1839; low mortality, 1822, 1824, 1834, 1836; average values; bread price)

TABLE IV

Extremes of mortality, France, two periods

1801–1810 (all years)
  Low mortality (767542) associated with low price (17.84 fr./hectol.)
  High mortality (829387) associated with high price (21.90 fr./hectol.)

1826–1835 (all years)
  Low mortality (835217) associated with low price (16.24 fr./hectol.)
  High mortality (836554) *no longer* associated with high price (22.19 fr./hectol.)

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physicians, no statistical tests were performed to check the probability of the conclusions drawn. These practices drew incisive criticism from the mathematically alert Jules Gavarret (*Principes généraux de statistique médicale ou développement des règles qui doivent présider à son emploi* [Paris: Bechet and Labe, 1840])

[18] Abstracted from Mélier's *Tableau* 3 ("Etudes," p. 195)

[19] Abstracted from Mélier's *Tableau* 10 ("Etudes," p. 198).

[20] Mélier's data also exhibited numerous exceptions to and contradictions of the overall pattern. Thus, in *Tableau* 1 ("Etudes," p. 195), in the years 1725 and 1752, when grain prices were very high, death was low and in 1763, a season of low prices, both morbidity and death were high (*Tableau* 9, *ibid.*, p. 198).

[21] Tables III and IV abstracted from Mélier's *Tableau* 20 ("Etudes," p. 203) and *Tableaux* 12-13 (*ibid.*, p. 199). In these as in all of the *tableaux* and discussion Mélier presented only crude death (and morbidity) rates; N was never stated and, due to the lack of any reliable census figures, was no doubt unknowable. Nonetheless, because the French population as a whole and that of Paris were in this period steadily increasing, the decline in mortality was probably even greater than the author realized.

It may be noted that in France throughout the eighteenth and until well into the nineteenth century far more comprehensive, more reliable and better ordered information was collected regarding the price of grains, wheat and bread than was available pertaining to total population and to the number of births, deaths and marriages in the nation. Mélier himself sarcastically remarked this singular fact of statecraft.[22] It is a fact which has been a boon to economic historians studying the annual movement of prices and their possible conjuncture with social events but it has made exact correlation of price and mortality, another and all-important conjuncture if one's interest is man's biological existence, a very difficult proposition.[23] To identify this latter conjuncture, and explain it if he could, was indeed Mélier's intention and in this aspiration and its realization, however imperfect, he was perhaps truly original. It would be perilous, nonetheless, uncritically to accept his figures as providing an objective representation of the correlation, whether for the 1750s or the 1830s.

One aspect of the problem Mélier did not examine in detail. The prices he stated were those on the national (or regional) market and the mortality reported was of course the aggregate of a sizeable population or populations. He assumed—rightly—that bread constituted the preponderant share of the national diet but did not attempt to quantify this share. He was aware, however, that popular diet was becoming increasingly diversified and that the proportionate place therein of bread seemed to be diminishing. Unfortunately, neither Mélier nor most others explored this matter in detail; his supposed correlation of wheat and bread price and mortality, therefore, while not denied, is rendered uncertain when applied to specific social categories.

Nonetheless, some data bearing on the matter—such data being admittedly sparse, perhaps unsure and often presented in the form that renders comparison difficult—does exist and it can be used to extend Mélier's cursory consideration of the problem. For such inquiries it is essential that not only the dietary share of each foodstuff be noted by quantity (usually weight) or by (calculated) caloric value, but by price and by the proportion of available income which this price commanded. Such desiderata are not easily satisfied. Of the weekly cash outlay for feeding a growing youth in Hamburg in 1792 bread and potatoes were estimated to demand some 53 percent.[24] For all Paris, evaluation of average per capita expenditure in 1826 showed that cereal goods constituted 18 percent of dietary expenditures.[25] This figure does not include potatoes and, being an average figure for a city in which vast wealth belonged to the few while great poverty was the possession of the many, gives no meaningful indication of dietary proportions as these differed, no doubt enormously, among social classes.

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[22] Mélier, "Etudes," p 181.

[23] See C E Labrousse, *La crise de l'économie française à la fin de l'ancien régime et au début de la révolution* (Paris P.U.F , 1944). Price series of wheat are presented by Labrousse et al , *Le prix de froment en France au temps de la monnaie stable (1726-1913), réédition de grands tableaux statistiques* (Paris S.E V.P.E.N , 1970). Data from across Europe and general discussion are given by G Lemarchand, *Le siècle des lumières. Tome I L'essor*, ed. A. Soboul et al., 2 vols. (Paris· P U F , 1977), 1· 322-354.

The matter was discussed in some detail, however, by two authors. Drawing on data provided by a "M. C. . . " regarding working class life in the cotton manufactories at Rouen, Villermé discovered that the daily ration of bread (again, potatoes were not identified as an independent category) comprised 32 percent of daily dietary expenditure for a working male, 37 percent for a female (her daily portion of butter, cheese, soup and cider was much less than that of the former) and, for a child of six, 45 percent.[26] Comparing the calculated total necessary annual expenditures for all purposes (470 fr. 39 cent., of which 339 fr. 45 cent. were devoted to food) for a male with this annual income Villermé pointed out that many persons (especially day laborers and working children) could not meet these costs from their earnings. Women, whose expenses were considerably less but whose wages were even more greatly reduced, were more frequently faced by such a deficit existence.[27] "These figures," which referred only to times of regular employment and normal wage levels, "present the condition of the workers as worse than even they admit."[28] Let hard times come, wages be driven down and unemployment increase, an all too common set of events in the crisis-ridden economy of early industrial France, these needs and costs which already were quite modest remained fixed while income declined. Diet suffered in this situation and with this came increasing use of cereals and potatoes.

This development is evidenced by an extraordinary report, perhaps unique of its kind, prepared by William Neild, mayor of Manchester, and dealing with the financial condition of working class families in Manchester and Dukinfield.[29] Having ascertained in meticulous detail total individual family income and fully itemized family expenditures for 1841 (a year of economic decline) and, by extrapolation, comparable data for 1836 (a prosperous year) Neild was able to expose the precise manner in which working class families "went back in the world." For example, a family of four whose head was a warehouseman had seen its weekly income drop between 1836 and 1841 from 16 shillings to 10 shillings 8 pence.[30] Expenditures, however, had increased from 12 shillings 9 pence to 14 shillings 6 pence; this family, like numerous others in Neild's report (see his "Recapitulation" table, p. 334), too obviously was in serious trouble. The proportion of income required for all foods also shifted, rising from 66% in 1836 to 73% in 1841. Within that share, cereals and potatoes gained notably, taking 45% in 1836 but 53% in 1841.[31] Hiding in these tables and figures and unremarked by Neild is a clue to a partial explanation of that shift of mortality away from bread prices upon which Mélier concentrated: new foodstuffs and greater diversity thereof, Mélier noted (he knew nothing of Neild's report), provided grounds for the biological stabilization of a population. These novelties were, as will be discussed below, the result of economic progress, a witness to the new reign of liberty in France and no less a direct answer to Malthus' gloomy view of increasing the means of subsistence.

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[24] Calculated from data in H. J. Teuteberg and Günther Wiegelmann, *Der Wandel der Nahrungsgewohnheiten unter dem Einfluss der Industrialisierung* (Gottingen Vandenhoeck and Ruprecht, 1972), pp. 148-149

[25] Calculated from data in J. P. Aron, *Essai sur la sensibilité alimentaire à Paris au 19e siècle* (Paris. Armand Colin, 1967), Tableau II [pp 128-129]

[26] Calculated from data in L R. Villermé, *Tableau de l'état physique et morale des ouvriers employés dans les manufactures de coton, de laine et de soie*, 2 vols. (Paris: Jules Renouard, 1840), 1: 177-183.

[27] *Ibid.*, pp 145-165, esp. pp 150-151.

[28] *Ibid.*, p. 152

But first the preliminary and specific conclusion of Mélier's analysis must be noted. All of his figures, of which those presented in Tables I-IV offer only a summary statement, indicated that as one approached the present, that is, the 1820s and after, annual variations in mortality tended to be damped, even halted. This was true for France as a whole and also for the capital city. "Good" years and "bad" years, once to be identified indifferently by grain prices or mortality, now were to be specified by the former alone. It seemed that death and prices had finally been disjoined. This throughout had been the principal tendency of Mélier's analysis and, of course, in this Malthusian generation it was merely a commonplace that population and subsistence moved together. But what, Mélier had asked, is the precise character of this movement? My task, he observed, was "only to make precise the terms of this connection."[32]

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[29] William Neild, "Comparative statement of the income and expenditure of certain families of the working classes in Manchester and Dukinfield, in the years 1836 and 1841," *J Roy Stat. Soc*, 1842, *4*: 320-334. See John Burnett, *Plenty and Want A Social History of Diet in England from 1815 to the Present Day*, 2nd ed. (London. Scolar Press, 1979), pp. 69-72.

[30] Table ["Family 18,"], Neild, "Comparative statement," p. 331. My calculations

[31] *Ibid.* Meat and bacon together also increased their share (from 16% to 21%) but, since prices of these commodities had risen in the period 54% and 40% respectively, they played a notably lesser role in overall diet in 1841. The price of bread, always the central dietary component, also rose (27%), as did that of oatmeal (33%) and potatoes (50%) *ibid*, Table 3, p. 332

Villermé had already suggested the essential connection, namely, that between cost and death. He, and Mélier after him, well understood the biological or epidemiological equivalence of *cherté* and *misére*. I must note, Villermé remarked, that "for many of the poor the high cost of food is equivalent to harvest failure and consequently it will produce, whenever excessive, an increase in mortality."[33] At the same time he added, in a sophisticated but unheeded aside, that the real measure in this matter should not be the "nominal price of a pound of bread" but the amount of labor demanded for its purchase, expressed by an "average day's labor" or its proportion. Villermé never claimed that price or any other parameter provided a unique measure of mortality and Mélier, too, carefully denied this possible misunderstanding of his intention. Just because, he stated, we can construct "curves" representing price and mortality which form "two lines almost wholly parallel to one another, lines whose principal contours correspond," does not mean that there exists a "perfect concordance" between them. For that to occur we would have to assume that "mortality is affected only by the price of grain, a view, one should understand, I am far from entertaining."[34]

The correlation thus established between price and mortality, albeit an important but not exclusive one, set the stage for the author's central argument. Death, which was a biological or medical event, followed upon high prices or marked harvest deficiencies, and these were *par excellence* economic and social events.[35] Matters social and medical were driven, as was intended, ever closer together. It thus became possible to ask other and more significant questions. Why, first of all, had mortality in recent years shown increasing independence of grain prices? What role, if any, had the medical art played in this achievement? How did the facts now laid bare belie the pessimistic vision of the Malthusians and thereby grant French society renewed assurance of both the desirability and possibility of increasing its population? Mélier the physician in answering these questions won the enthusiastic approval of his future colleagues in the Academy of Medicine and showed that, in Double's words, he had not only studied the most "celebrated economists" but especially those "who subordinated theories to applications."[36] In short, there was seen in his effort none of that severe and abstruse deductive style held to be characteristic of the English economists and their occasional French spokesmen and much of that happy combination of positive fact and clear reasoning long celebrated by Gallic writers.

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[32] Mélier, "Etudes," p 183

[33] L.R. Villermé, "Des épidémies sous les rapports de l'hygiène publique, de la statistique et de l'économie politique," *Annales d'hygiène publique et de médecine légale*, 1833, *9*. 26, n 1. Villermé noted elsewhere that not just mortality but also the birth rate is set by price· "Rapport fait à l'Académie des sciences morales et politiques sur un ouvrage intitulé: De la véritable loi de population (The true law of population, etc.), par M. Thomas Doubleday," *Journal des économistes*, 1843, *6* 416

[34] Mélier, "Etudes," p 177 and n Mélier's statement deserves special remark. He clearly had prepared graphic representations of statistical materials but refrained from publishing them Villermé apparently acted in similar manner—both may have created these figures for use in their *cours d'hygiène* given at the Athénée in the late 1820s. The graphic method in statistics as in cartography and as applied to medical investigation and instruction deserves much greater attention. See H. G Funkhouser, "Historical development of the graphical representation of statistical data," *Osiris*, 1937, *3* 269-404, L. G. Stevenson, "Putting disease on the map The early use of spot maps in the study of yellow fever," *J. Hist Med.*, 1965, *20* 226-261.

[35] French authors generally avoided the critical question Precisely how did dietary deprivation increase mortality? The net effect was taken as fact and not subjected to further scrutiny Villermé, like

Mélier's answers were posed in the language of liberty, production and progress. These were the essential analytical terms of contemporary economic liberalism and bore also the greatest burden of the *économiste's* propaganda mission. This was a liberalism which had guided French improvers since the Revolution and which, in the view of its keenest apologists, had finally won its full rights with the July Revolution of 1830.[37] At the time of Mélier's writing the liberal ethos reigned supreme, its bearers perhaps casting an occasional nervous glance at rising social tension and radical republican and socialist agitation but nonetheless finding in their own doctrines easy consolation for current social dishar-

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others, did insist that famine increases "epidemics" ("Epidémies," pp. 20-31, esp. p. 26, "epidemics" was ambiguous, referring both to periods of vastly elevated sickness and mortality and to the more modest periodic fluctuations of normal morbidity and death); he thus implied that death by starvation alone was perhaps a lesser problem. An intensive discussion of this problem is given by Thomas McKeown, *The Modern Rise of Population* (New York: Academic Press, 1976), pp. 128-142. McKeown, like Mélier, emphasizes the nutritional element in population increase. Further discussion of these several issues, all in one way or another involving the standard-of-living controversy, is offered by Phyllis Deane, *The First Industrial Revolution* (Cambridge: Cambridge University Press, 1969), pp. 237-253; A. B. Appleby, "Nutrition and disease: the case of London, 1550-1750," *J. Interdiscipl. Hist.* 1975, *6*: 1-22; J. D. Post, "Famine, mortality and epidemic disease in the process of modernization," *Econ. Hist. Rev.*, 1976, *29*: 14-37.

[36] Double, "Rapport . . . sur une mémoire de M. Mélier," pp. 215-217.

[37] Regrettably there is no modern detailed study of the school of *économie politique*, but see the classic *A History of Economic Doctrines from the Time of the Physiocrats to the Present Day* by Charles Gide and Charles Rist, trans. R. Richards (Boston: D. C. Heath, n.d.), pp. 102-118, 169-198, 322-348; also J. Touchard et al., *Histoire des idées politiques*, 2 vols. (Paris: P.U.F., 1962), 2: 516-531 (on French liberalism).

monies. The latter, they believed, were at worst only temporary, an inevitable sign of progress, and were soon to be transcended. Progress accomplished to date was itself the best assurance of continued economic expansion and of future social improvement. Mélier was quite cognizant of this happy industrial expansion and also well aware of the social and medical perils which it posed but, for the argumentative purpose of his 1843 essay, he necessarily turned his readers' attention instead to contemporary agricultural improvement.

With the means of subsistence at issue this gesture was inevitable. Mélier, certainly, had not been first in the field. A very close approximation to his analysis but one lacking the latter's large and systematic fund of numerical expression of the price-mortality series had recently been published by the engineer, statesman and impassioned *économiste,* Charles Dupin. Dupin's concern had been to show that the relative toll of famines had sharply diminished since the eighteenth century. Indeed, their effect had "diminished to the level of secondary effects which one can ascertain only by mathematical expedients (*artifices de calculation*), by setting apart a sizeable number of years of very high and very low prices."[38] This was precisely Mélier's manner of pursuing his analysis. Dupin recognized, therefore, the importance of agricultural improvements in general but failed to indicate what, specifically, these had been and how they might account for diminished mortality and stand in refutation of Malthus. Mélier made a start at this task.

Liberty, the great acquisition of the Revolution, had stimulated agricultural production and thus inaugurated the era of progress. Old France had been a compartmentalized assemblage of provinces and *Généralités* each with its own customs and local interests. Conflicting jurisdictions, antiquated laws and grossly inefficient exploitative methods had stifled agricultural production and hindered the development of rapid and efficient internal transport. Vast price differentials arose in neighboring provincial markets; one area of the nation might enjoy a glut of grain at the same time that others were experiencing a dearth. The Revolution removed these constraints, thereby inviting increased competition and more rational and more intensive exploitation of the land. A larger and more assured harvest of grain was thus translated from possibility to actuality.

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[38] F. P C. Dupin, "Influence du prix des grains sur la population française," *Comptes rendus de l'Académie royale des sciences,* 1836, 2 586. See E Franceschini, "Dupin, François Pierre Charles," Roman d'Amat et al., eds. *Dictionnaire de biographie française,* 13 vols. to date (Paris: Letouzy and Ané, 1933), 12 (1970), cols. 358-362.

"The hygiene of a nation," Mélier could therefore observe, "lies in its laws, in its government, as much as in the teachings of medicine."[39]

But dietary diversity had also been increased, a crucial improvement and one due both to liberty and to the improvers' quest for ever new and better products. Fresh vegetables were becoming a major element in the total national agricultural product and, with wheat, offered a particularly apt crop for the smallholders, whose numbers had been greatly increased by revolutionary legislation. Intensive cultivation of the potato had begun and this miraculous tuber seemed alone capable of supporting a vast number of persons who possessed only the most limited financial means. Mélier announced that the potato would henceforth "render impossible those great dearths, those frightful famines which have so often desolated the world and destroyed its nations." Had not the potato, this confident author of 1843 asked rhetorically, already many times saved Ireland from famine?[40] The creation of numerous small parcels of land seemed to limit only the production of meat.[41] Obviously, the modern disjunction of price and mortality as evidenced by the figures given in Tables I-IV could be explained only in part by the increase of an assured grain supply; grains and notably wheat were playing a less important part in the diet of the mass of the population. Neild's data for Manchester and Dukinfield allow the dietary contribution of bread and potatoes to be separated but Mélier's unfortunately do not.

Preliminaries, however, were now completed and it was time to state the important socioeconomic message of hygienic analysis. Mélier announced that increased means of subsistence—in his eyes a now demonstrated reality—assured the existence of a larger population and a longer life for each of its members, and that conclusion in itself seemed adequate to destroy Malthus' merely deductive consideration of the problem.

> This entire analysis marvellously explains the diminution of mortality wherever it occurs, whether at home or in the hospital, and, as a consequence, also explains the growth of the population, a growth which is all the more remarkable and decisive as the number of births is [today in France] decreasing.
>
> Man's average lifespan has been extended. He is less quickly carried off; the generations of men endure longer and are less frequently renewed. This constitutes the most desirable condition of a population.[42]

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[39] Mélier, "Etudes," pp. 185-187, passage cited, p 187.

[40] *Ibid* , pp. 189-190. Villermé echoed this growing sentiment, see his review "*Considérations sur les céréales et principalement sur les froments,* par M le docteur Loiseleur-Deslongchamps," *Journal des économistes,* 1843, *6* 171

[41] *Ibid* , pp. 189, n 1, 191-193

[42] *Ibid.,* p. 190. Mélier's remark offers contemporary recognition of a notable new, and soon to become profoundly disturbing, fact of French social life and national power, the declining birthrate and, with it, an

Progress and civilization, keywords in the liberal vocabulary, had been placed in the balance and not found wanting. Progress rallied the liberal party across Europe and it gave French hygienists welcome justification for their investigations. If the people's diet in 1840 was poorly balanced or inadequate (often enough it was both), declining mortality in hard times (the decisive "fact" to emerge from Mélier's inquiry) nonetheless seemed to prove that the situation of the masses had improved since the dreadful days of the old regime. Here was a concrete measure of progress and one provided uniquely by hygienic investigation, the latter now an intrinsic component in Say's *économie sociale* or *politique*. Progress itself was explained by the advance of civilization, that is, by greater rationality in the conduct of public and private affairs and by economic expansion, notably industrialization and agricultural improvement.[43] Both were deemed the immediate and tangible realization of the new reign of liberty and thus a direct benefit of the Revolution which had set France on its course of renewed greatness.

What role had medicine itself played in these events? The period was one of therapeutic scepticism, even nihilism, and few if any of the physician-*économistes* could be expected to seek theoretical guidance from that quarter.[44] It was not, of course, Mélier's purpose to even contemplate such assistance. But vaccination for smallpox was another matter. As a demonstrably effective preventive measure it demanded serious consideration. Mélier, however, gave vaccination only brief notice—"Without the least exaggeration, one may say that the effect of increased means of subsistence on increasing the population is at least equal to that of vaccine"—but did refer his reader to an altogether remarkable discussion of the topic by J. B. E. Bousquet.[45]

Bousquet, physician to the Orléans family and for long years a senior administrative officer of the Academy of Medicine (editing its celebrated

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increasingly static population This trend, with short-term interruptions, continued dramatically throughout the nineteenth and into the twentieth century (see the vivid figure provided by A. Armengaud, *La population française au XIXe siècle* [Paris: P.U.F., 1971], p. 12) Nineteenth-century French advocates of populationism, against whose claims Malthus' views seemed to throw a fearsome obstacle, faced, unlike propagandists of the previous century, a very real threat of national depopulation.

[43] The flavor of this special if widespread meaning of civilization is splendidly imparted by Gustav de Molinari, "Civilisation," *Dictionnaire de l'économie politique*, 1 370-377.

[44] On scepticism, see E H Ackerknecht, *Medicine at the Paris Hospital, 1794-1848* (Baltimore. Johns Hopkins Press, 1967), pp. 129-138, on the positive aspect of scepticism, recourse to the *vis medicatrix naturae* see Max Neuburger, *Die Lehre von der Heilkraft der Natur im Wandel der Zeiten* (Stuttgart Ferdinand Enke, 1926), pp 127f.

[45] Mélier, "Etudes," p 191, n 1.

Bulletin from 1836 to 1860), spoke "at the request of the government."[46] His task in the unexpected concluding chapter of the *Treatise* ("De l'influence de la vaccine sur la population," an effort warmly praised by Mélier) was to determine the contribution made by vaccination to increased population. The problem was complex, the influence of the different variables could not be reliably separated from one another and population growth in Europe had surely begun before vaccination became a widespread practice. The populationist, and such were Bousquet and most *économistes,* together with physicians who supported their cause, tended to emphasize causes which acted prior to those which appeared to serve as sources of disease. Bousquet argued that vaccination can only save those persons who are first economically or, if you will, biologically sheltered. Our task is not simply to make children but to raise them. This requires not only protection from smallpox, a disease taking an especial toll of the unprotected young, but also assurance that survivors will have adequate food, sound shelter and the prospect of future useful employment. Vaccination and economic development concur in achieving these ends, they are "two rival powers which lend mutual assistance to one another."[47] He whom vaccination saves is assured continued existence by the advance of agriculture and especially industry (here Bousquet's emphasis differed from Mélier's unique focus upon agricultural improvement).

Medicine's populationist role was in fact limited by the economic level attained by a given society. At a particular time and place and with or without the aid of vaccination, population will reach a definite level which it cannot exceed. Beyond this point medicine can lend no aid. Neither Bousquet nor Mélier, both busy practitioners, had a taste for denigrating the art by which they lived, yet both realized that, in the grand program of populationism, economic progress and national power, medicine was virtually impotent. Increased production generated particularly by industrial expansion was the only sure means of increasing population. Medicine (vaccination) would then play its part by improving the lot of those who lived, increasing their happiness and prolonging the lifespan of the individual. These were the signs of a truly prosperous nation and an assurance that progress would continue. "By abridging the suffering [of the sick, medicine] returns them to their occupations and puts them in a position to create new products. . . . The true claim of vaccination to public recognition is that it preserves men less for propagation than for work. It is above all in this manner, I say, that vaccination contributes to the growth of population."[48] To what use a medical measure, Bousquet was asking, with Mélier in full concurrence, if children saved from smallpox then quickly died from malnutrition and its numerous sequelae? And, as Mélier and Villermé were determined to prove, malnutrition was as much a socioeconomic problem, one conditioned by market price and by secure and adequate wages, as it was an individual or familial calamity.

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[46] J. B Bousquet, *Traité de la vaccine et des éruptions varioleuses ou varioliformes Ouvrage rédigé sur la demande du gouvernement* (Paris: Baillière, 1833).

[47] *Ibid* , p 354

Hygienic analysis of price and mortality, apparently now won for and by the realm of hard fact alone, thus destroyed the abstract and vain sciences of Malthus. Dupin celebrated the victory:

> One need not preach to the French the desolate doctrine of Malthus regarding reproduction by the least favored social classes, such preaching is not necessary nor would it be useful. [In France] members of these classes taken as a whole possess sufficient courage and industry to resist destitution in hard times: they have sufficient wisdom to maintain a suitable reserve in times of abundance. We must admire this tendency in the nature of things which, allied to domestic circumspection, thus restrains the numerical inequality between births and marriages, a tendency which advances with a progressive force that is composed of all the elements of well-being and prosperity that our civilization develops and perpetuates.
>
> There is no doubt that science must have the courage to tell the austere truth to the people when the results of its investigations arrive in fact at the truth; science is honored by the courage which cast Galileo into the prisons of Florence. But science is even more greatly flattered (*trop heureuse*) when it can demonstrate that speculative theoretical systems, theories which chill the heart and wound our natural sentiments, rest on no experiential foundations and are denied by the facts. To destroy these inhuman consequences of Malthusian doctrine is at the same time to honor truth and serve humanity.[49]

Mélier, who of course shared these conclusions, had given greater scope to his consideration of the Malthusian claim. He realized that his English predecessor had spoken truly when he tied population size and means of subsistence so closely together and granted also Malthus' advice that the former was always constrained by the latter. But parson Malthus had not known all the facts of the matter and no doubt had also been too much taken by party spirit. Such facts hygienic inquiry now not so much produced but, by assembling them from available evidence and scrutinizing them from an ostensibly more balanced perspective, rendered them scientifically meaningful and socially significant.[50] The means of subsistence had indeed increased, at least in France; the diversity of foodstuffs had also increased, at least in France—such was Mélier's lesson. The increase in question was not measured by volume of goods on the market place (although that factor was not ignored) but by the new and critically important fact which mortality figures revealed: aggregate death appeared to be independent of the price of the long predominant and still extremely important grains, notably wheat. From such considerations "we may therefore infer," Mélier concluded, "that in a well organized society the means of subsistence have a very strong tendency to increase, a tendency which, in our nation, surpasses that of the population [to increase]. Here we have a powerful argument to set against the theory of Malthus and against his famous progressions."[51]

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[48] *Ibid.*, pp. 356, 359. Vaccination was intensely resisted by ecclesiastical authorities and popular opinion. It was utilized in widespread manner only by the urban elite and other *notables*, spreading to the nation at large very late in the nineteenth century. Its general demographic effect (if any) is therefore also not to be expected until ca. 1900. See J. Léonard, *La France médicale. Médecins et malades au XIX' siècle* (Paris: Gallimard-Juillard, 1978), pp. 25-30.

[49] Dupin, "Influence du prix des grains," pp. 590-591.

Optimism had no easy course or wholly assured success in the contending doctrinal positions of French political economy. Malthus himself had cast the antipopulationist argument against the claims for inevitable social and economic improvement put forward by William Godwin and the Marquis de Condorcet. Say, however, had held that men are reasonable or, at least, may be made so without undue difficulty. He appreciated the conjunction of means of subsistence and mortality and the perils of overpopulation. But, whereas Malthus and David Ricardo took their guide from the somber prospect of the law of diminishing returns, Say and his followers favored Smith's more sanguine outlook, finding in the prospect of ever-expanding production the basis for an expanding and generally more healthy population.[52] Say's rationalism, although occasionally modified, gave assurance that goods will always find, creating if necessary, their consumer. Thus would economic and social harmony prevail at the same time that the nation *en masse* moved progressively forward.

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[50] Malthus, who too easily had confounded a "tendency" to overpopulation with the actual realization of the threat, the possibility with the necessity, was himself only reluctantly brought to admit the critical qualification: Antony Flew, "Malthus, Thomas Robert," in Paul Edwards, ed., *The Encyclopedia of Philosophy*, 8 vols. (New York: Collier Macmillan, 1967), 5· 147

[51] Mélier, "Etudes," p 194

[52] J. B. Say, *Cours complet d'économie politique*, 2nd ed., 2 vols (Paris: Guillaumin, 1840), 2 154-155 This section of Say's famous *cours*, delivered for many years at the *Conservatoire des arts et métiers* and a major instrument for publicizing the views of the *économistes*, could well have given clear definition to the particular issues with which Dupin and Mélier soon dealt. see "Du nombre et de la condition des hommes," *ibid*, pp. 121-196. The first edition of Say's *Cours complet* was published in 1828-1829

Subsequent French debate of the Malthusian populationist theory, as noted above, tended to caution and much qualification. Many observers, including such leaders of economic thought as Destutt de Tracy, Michel Chevalier and even the sensitive Simonde de Sismondi, simply accepted Malthus's worst expectations but then argued—the optimistic element thus returning to evidence—that the masses must and can be instructed to pursue their own self-interest. Population will not outrun resources because reasonable men will learn to appreciate the necessity of limiting their numbers and consequently will practice moral restraint. Mélier, like Dupin, favored an empirical consideration of the problem, a consideration which followed closely the basic form of Say's celebrated and incorrigibly optimistic law of markets. Say denied the possibility in a free economy of overproduction: every product, when exchange is unfettered and each nation develops fully its productive potential, will be absorbed by the market. No surplus will remain, wealth will be increased by both production and exchange and social harmony will prevail. "For some twenty years [ca. 1815-1835]," Allix has observed, Say's "fecund notion of production in itself provided both an economic and a political program."[53] Mélier had demonstrated to his own and the Academy's satisfaction that two other productive processes were also in harmony and even provided, from the human perspective, a margin of security. Population was expanding in France but it did not outrun the also expanding pace of agricultural production. Here was the assurance of simultaneous and continued social stability and economic growth.

Erwin Ackerknecht has frequently insisted upon the protean form which medicine assumed in France during the years of the constitutional monarchy.[54] Medicine then as now embraced not only a body of theory and technique, a corps of experienced practitioners and related professional institutions but entered into and drew from the very social fabric itself. Medicine, and this fact is in no small part due to the physicians, hygienists and economists of Mélier's generation, necessarily deals with and helps to define, even create, problems at the familial, economic, political and industrial levels, in short, at all social levels. Mélier's claim—medical progress, whose measure is diminished mortality, is a function of socioeconomic conditions—was but one aspect of this broader endeavor. Malthus had to be countered both because his views, should the argument and evidence related above be accepted as valid, were false and because they stood in the way of the dual goal of economic expansion and population increase. Inquiries such as that conducted by Mélier carried the medical perspective far beyond the bedside, clinic and dissection hall and rendered the healing art a central element in the creation of the empirical social sciences. The numerical method was intrinsically population-oriented and, when coupled to justification of contemporary economic development, proved a singularly efficacious tool for social analysis. It was not then and, in itself, surely never will be an impartial tool. Mélier and his associates spoke often of science but rarely if at all of impartiality. For them social science was not value-free and that illusion should not even be pursued. The argument against Malthus, conducted with what seemed the best instruments then available, was both a reassuring hygienic inquiry and a forthright statement in defense of newly ascendant social and economic interests.

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[53] E. Allix, "J.-B. Say et les origines de l'industrialisme," *Revue d'économie politique*, 1910, *24* 305

[54] Ackerknecht, *Medicine at the Paris Hospital*, pp 149-160, Ackerknecht, *La médecine à Paris entre 1800 et 1850* (Paris Palais de la Découverte, 1958), 22 pp.

BLACK LUNG: MINERS' MILITANCY AND MEDICAL UNCERTAINTY, 1968-1972*

DANIEL M. FOX AND JUDITH F. STONE

Miners' respiratory complaints have engaged medical interest and political attention for several hundred years. In his classic study, *The History of Miners' Diseases,* George Rosen concluded that "throughout the nineteenth century the entire body of mining legislation had practically no connection with contemporary medical study of disease among miners."[1] A similar discontinuity between science and social policy characterized the controversy preceding the passage of the Coal Mine Health and Safety Act of 1969 and its amendment in 1972 by the Congress of the United States. These events, however, differed from other episodes in the history of the politics of occupational disease. Such illnesses have, as Rosen declared, a "dual nature."[2] They are both social and medical phenomena. In the United States a decade ago, the medical aspect of the dualism became, for a time, subordinate to the social.

Angry miners persuaded public officials to accept their definition of disease, respiratory impairment resulting from work, and to reject prevailing opinion among pathologists, epidemiologists and internists. The miners' anger and its translation into effective politics was a result of a series of events which persuaded a significant number of them that they had been betrayed by their employers, their union and their government. Black Lung, as miners called their disease, did physical and psychological harm. It was also a symbol of the powerlessness felt by miners as they observed the decline of the coal industry, the corruption of the United Mine Workers of America, the erosion of community life in rural Appalachia as a result of outmigration and war, and the curtailment of the unique health care and pension system that compensated for some of the hardships of mining. Black Lung, unlike other diseases, did not yield precise correlations between clinical and pathological findings. The correlations were instead emotional, social, economic and political.

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* Revised version of a paper read at the 51st annual meeting of the American Association for the History of Medicine, Kansas City, Missouri, May 11, 1978.

[1] George Rosen, *The History of Miners' Diseases* (New York Schuman's, 1943), p 457

[2] *Ibid.*, p. 309.

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This is an essay in contemporary history. Although many of the events we discuss occurred in the past decade, our themes are familiar to historians. The essay is grounded in the history of medicine, of labor unions, of the people of the Southern Mountains, and of legislative politics in the United States. Without this considerable literature, we would have left the subject to chroniclers and polemicists.

The essay is analytical, although it raises issues about which many people have strong opinions. We intend to disappoint readers who are convinced that there are unambiguous answers to the major questions physicians, epidemiologists, miners, industrialists and public officials have asked about the relationship between coal dust and disease in this century.

When miners' lung ailments became the focus of regional and national attention in the United States in the late 1960s, medical opinion about them was sharply divided. The most controversial issues were the relationship between coal dust and respiratory distress and the methods of ascertaining the extent of impairment. The mechanism by which coal dust acted on the lungs was unclear. There were conflicting opinions about the effects of the inhalation of coal dust on the development of coal workers' pneumoconiosis, chronic bronchitis and emphysema. Clinicians disputed the significance of correlations between clinical evidence of respiratory impairment and X-ray findings. Pathologists debated the meaning of considerable blackness in the lungs at autopsy without previous clinical findings of loss of pulmonary function. Epidemiologists could not always find strong independent correlations between respiratory disorders in mining communities and work in the mines.

The consensus among medical investigators in the United States and Europe was that miners had serious respiratory problems which were only in part related to coal dust. Aside from urging the control of exposure to dust in the mines and the provision of care for people in distress, however, medical science offered little guidance for public policy. For instance, Donald Hunter, author of the leading textbook on occupational diseases, concluded that, "the reasons for the differences in individual reactions to dust are not accurately known, but it is likely that they depend on anatomical, physiological and biochemical variations from one person to another."[3] A panel of pathologists, summarizing knowledge about coal workers' pneumoconiosis in 1970, noted that "factors in addition to coal dust may contribute to pulmonary disease in coal workers."[4] In the same year, two German scientists, synthesizing a generation of research in various countries concluded cautiously that "possible connections between dust exposure, coal miners' pneumoconiosis and bronchial disease have repeatedly been emphasized."[5] A review of knowledge about the control of environmental lung disease published in the *New England Journal of Medicine* in mid-1970, argued that the "mechanism of action of coal dust on the lungs remains obscure" but that it was "urgently necessary to apply and enforce the safe exposure limits based on information that is already available."[6]

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[3] Donald Hunter, *The Diseases of Occupations* (London. English Universities Press, 1974), p. 929. Hunter summarizes the history of medical research on illnesses related to coal dust, pp. 993ff.

Physicians who were closer to the conditions of miners and mining were impatient with these uncertainties. Lorin Kerr, for example, Director of Occupational Health for the United Mine Workers of America, was aware of a "lack of precise knowledge concerning the lethal effects of coal dust." But Kerr attacked "employer-oriented physicians who avoid facing known facts about the ravages of coal dust in human lungs because to do otherwise could cost money."[7] As Kerr told the Mine Workers' convention in 1968:

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[4] Averill A Liebow, "Pathology of Coal Workers' Pneumoconiosis," *Ind. Med.*, 1970, *39* 23.

[5] G Reichel and W. T. Ulmer, "The interrelationship of Coalminers' Pneumoconiosis and Bronchitis," *Inhaled Particles and Vapors*, 1970, 2. 897.

[6] Arend Bouhuys and John M. Peters, "Control of environmental lung disease," *New England J. Med.* 1970, *283*· 574 The classic study is A. G. Heppleston, "Coal Workers' Pneumoconiosis· pathological and etiological considerations," *Archs. Ind. Hyg. Occ. Med* , 1951, *4*· 270-288. Significant work on the pathology of miners' lung disease was reported in the 1960s and early 1970s by: W. K. C. Morgan et al., "A comparison of the prevalence of Coal Workers' Pneumoconiosis and respiratory impairment in Pennsylvania bituminous and anthracite miners," *Annals New York Acad Sci.*, 1972, *200* 252-259; Richard L. Naeye et al., "Effects of smoking on lung structure of Appalachian coal workers," *Archs. Envir. Health*, 1971, *22*· 190-193; and Philip C. Pratt, "Introductory remarks concerning pathological changes in Coal Workers' Pneumoconiosis," *Annals New York Acad Sci* , 1972, *200*. 342-346 Work in epidemiology was reported in the same years by Philip E. Enterline and William S. Lainhart, "The relationship between coal mining and chronic nonspecific respiratory disease," *Amer J. Public Health*, 1967, *57* 484-495; Philip E Enterline, "Epidemiology of Coal Workers' Pneumoconiosis," *Ind Med* , 1970, *3* 20-22; W. S. Lainhart et al., *Pneumoconiosis in Appalachian Bituminous Coal Miners*, U.S Department of Health, Education and Welfare, Environmental Control Administration (Cincinnati, Ohio, 1969); Ian T. T Higgins, "Chronic respiratory diseases in mining communities," *Annals New York Acad. Sci* , 1972, *200* 197-220, and George K Tokuhata et al., "Pneumoconiosis among anthracite coal miners in Pennsylvania," *Amer. J. Public Health*, 1970, *60* 441-451. A more recent survey of the literature is *Mineral Resources and the Environment Supplementary Report Coal Workers' Pneumoconiosis—Medical Considerations, Some Social Implications* (Washington, D.C.: National Academy of Sciences, 1976). The authors are grateful to Marvin Kuschner, M.D., of the State University of New York at Stony Brook for guidance in the medical literature.

[7] Lorin E Kerr, "Coal Workers' Pneumoconiosis in an affluent society," *Public Health Reports*, October, 1970, *85*. 850.

> At work you are covered with dust. It's in your hair, your clothes and your skin. The rims of your eyes are coated with it. It gets between your teeth and you swallow it. You suck so much of it into your lungs that until you die you never stop spitting up coal. . . Slowly you notice that you are getting short of breath when you walk up a hill. On the job, you stop more often to catch your breath. Finally, just walking across the room at home is an effort. . . Call it miners' asthma, silicosis, coal workers' pneumoconiosis—they are all dust diseases with the same symptoms.[8]

Donald Rasmussen, a physician at the Appalachian Regional Hospital in Beckley, West Virginia made the same point in conventional medical language in a paper in the *American Review of Respiratory Disease* the same year:

> Physiologic studies of 192 symptomatic bituminous coal miners from one Southern Appalachian region . . . demonstrated significant pulmonary insufficiency in large numbers of subjects with only minimal roentgenographic evidence of pneumoconiosis.[9]

The physicians who advocated action on behalf of miners became less restrained after a mine explosion at Farmington, West Virginia in 1968 provoked miners' militancy. I. A. Buff, a Charleston cardiologist had warned publicly about the dangers of coal dust since the 1950s. In late 1968, Buff, Rasmussen and Hawey Wells, a physician who was also the son-in-law of a powerful West Virginia Congressman, Harley Staggers, organized a Committee of Physicians for Miners' Health and Safety. Members of the Committee spoke frequently about lung disease over the next several years in mining communities and at Congressional Hearings.[10]

These physician-advocates were less concerned about the limits of medical knowledge than they were about the use of uncertainty to justify political complacency. They knew from both history and personal experience the social and professional pressures that led physicians to minimize the importance of the relationship between coal dust and respiratory ailments. Donald Hunter was bitter about medical complacency in his textbook.[11] Physicians like Kerr and Rasmussen who were close to the

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[8] Lorin E. Kerr, "The facts on Black Lung," in *Black Lung* (Washington, D C.. United Mine Workers of America, Department of Occupational Health, 1969)

[9] D L. Rasmussen et al, "Pulmonary impairment in Southern West Virginia coal miners," *Amer Rev. Resp Dis* , 1968. *98.* 665.

[10] Robert G. Sherrill, "West Virginia miracle· The Black Lung rebellion," *The Nation*, 1969, *208.* 529-530, Philip Trupp, *Readers' Digest*, June, 1969, *94* 101-105.

[11] Hunter, *Diseases of Occupations*, pp. 992-998.

UMWA health care system had first hand experience of the attitude exemplified in a statement by the Cabell County, West Virginia Medical Society in 1969:

> . . . a consensus of medical authority [considers] simple, uncomplicated and uninfected coal workers' pneumoconiosis a condition compatible with reasonable health and not associated with significant disabling disease.[12]

Like coal miners themselves, who have traditionally believed that prolonged exposure to coal dust produces wheezing and shortness of breath, the Committee of Physicians for Miners' Health and Safety was more interested in focusing public attention on miners' pain and disability than with precisely what pathology was dose-related.

Appalachian miners were unusually receptive to the warnings of these physicians in the late 1960s. They were worried about a steady loss of jobs and benefits as a result of two decades of decline in the coal industry. Industrial decline, in which the leaders of the United Mine Workers appeared to acquiesce, reduced funds for the health and medical services for miners that had evolved over several generations. The explosion at Farmington, in which 78 miners were killed, led miners throughout the southern coal fields to express their anger publicly. Anger quickly led to political action. Action was most vigorous in West Virginia, where strikes and demonstrations were followed by lobbying of the Legislature and litigation in the courts. These events stimulated and shaped the debates later in 1969 about Federal intervention in mine safety and health.

The events of the late 1960s have an historical background which was very much on the minds of participants. The history of the coal industry, the union, and even the unique system of health care that had evolved in the coal fields has often been described and analyzed orally, in writing, and in music.

Miners are the largest group of Americans for whom prepaid health care has been an entitlement for several generations. Until the late 1940s, physicians under contract to the larger coal companies were paid by a deduction from miners' wages. After the Second World War, the tradition of prepaid medical care was maintained and expanded when the United Mine Workers took responsibility for most health services in the Appalachian coal fields.

In 1948, after a bitter series of strikes, John L. Lewis, president of the UMWA, negotiated a commitment from the mine owners that they would be the sole contributors to a Welfare and Retirement Fund. The contract stipulated that the companies would pay a royalty to the Fund for every ton of coal extracted. Originally the royalty was 5 cents per ton; by 1952 it was raised to 40 cents and remained at that level for the next twenty years. The royalty payments provided sufficient capital for the union to organize clinics on the group-practice model and to construct ten hospitals. Initially the Fund offered union members a $100/month retirement pension at the age of 65 if they had worked for 20 years in the mines, a disability pension for injuries and sickness, and free medical services for miners and their dependents. A three member Board, comprised of union, management, and a neutral trustee administered the Fund. In the late 1940s and early 1950s Lewis' achievement attracted national attention.[13]

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[12] Sherrill, "West Virginia miracle," p. 532.

In return for the Welfare and Retirement Fund, the United Mine Workers agreed to accept and encourage extensive mechanization of the mining industry and thus a major reduction in the labor force.[14] Lewis was not coerced by the companies to endorse industrial rationalization; on the contrary, he convinced the owners of its efficacy. He believed that "labor is entitled to a participation in the increased productivity due to mechanization . . . It is better to have a half a million men working in the industry at good wages and high standards of living than it is to have a million working in the industry in poverty and degradation." The new "high standards of living" would be provided by the Welfare and Retirement Fund.[15]

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[13] Rosen's study remains the best general history of health care for miners. Also useful is Ludwig Teleky, *History of Factory and Mine Hygiene* (New York Columbia University Press, 1948) An excellent recent study of health and safety in coal mining in the early twentieth century is William Graebner, *Coal-Mining Safety in the Progressive Period. The Political Economy of Reform* (Lexington. University Press of Kentucky, 1976). Less satisfactory is David M Holford, "Coal miners and Black Lung disease The origins of awareness," Presented at the Missouri Valley History Conference, Omaha, Nebraska, March, 1978. The classic study of prepaid medical care is Pierce Williams et al., *The Purchase of Medical Care Through Fixed Periodic Payment* (New York: National Bureau of Economic Research, 1932) Chapters 7 and 8 describe prepaid health services for miners in the Appalachian South An important study of the national context is Jerome L. Schwartz, "Early history of prepaid medical care plans," *Bull Hist Med.*, 1965, *39*· 450-475. A useful study of health problems in the southern mountains before 1948 is M. H Ross, "The Appalachian coal miner His way of living, working and relating to others," *Annals New York Acad Sci.*, 1972, *200* 184-196. Conditions in and around the mines, and in particular problems with coal dust, in the 1930s were dramatized in a novel, Hubert Skidmore, *Hawk's Nest* (New York· Doubleday, Doran, 1941) The history of the miners' Welfare and Retirement Fund and its antecedents is described in Leslie A. Falk, "Coal miners' prepaid medical care in the United States—and some British relationships, 1792-1964," *Medical Care*, 1966, *4* 37-42 The report prepared by Admiral Joel T Boone and his staff in 1947 remains an important source for health problems and services in Appalachia *A Medical Survey of the Bituminous-Coal Industry*, Report of the Coal Mines Administration, U S. Department of the Interior (Washington, D.C.: U.S Govt. Printing Office, 1947). The most reliable recent secondary source for the history of the UMWA and the Fund is Melvin Dubofsky and Warren Van Tine, *John L. Lewis A Biography* (New York· Quadrangle, 1977) A narrative of the origins of the Fund and its health care system is in Joseph E Finley, *The Corrupt Kingdom The Rise and Fall of the United Mine Workers* (New York· Simon and Schuster, 1972) Other pertinent material on the Fund and the coal companies is in Morton S. Baratz, *The Union and the Coal Industry* (New Haven· Yale University Press, 1955) More analytical studies of the operation and problems of the Fund are: Leslie A. Falk, "Group health plans in coal mining communities," *J Health. Human Behavior*, 1963, *4* 4-13, Leslie A. Falk, "Comprehensive care in medical programs· The U.M.W A Welfare Fund," *Medical Care*, 1968, *6* 401-411, and Joseph W Garbarino, *Health Plans and Collective Bargaining* (Berkeley and Los Angeles University of California Press, 1960).

The operation of the Fund reflected the UMW's policy of close collaboration between union and management. The stability and expansion of the income which would eventually be disbursed as pensions and health benefits depended on the uninterrupted flow of ever increasing amounts of coal. Union officials became committed to keeping the mines open so that royalties would be paid.[16] Through the establishment of the Fund, health care in Appalachia became inextricably tied to the health of the mine industry itself. The contract of 1948, which had been intended to free miners' health care from the inadequate system of company doctors and management control, actually tied health services even more closely to fluctuations in the market for coal.

It was soon apparent that management's gains from the exchange of mechanization for fringe benefits clearly outweighed those of the miners. By the early 1960s the benefits of the Fund were no longer secure. Lewis

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[14] The rapid decline in employment and the simultaneous rise in productivity per miner is exemplified by the following statistics:

1950	416,000	working miners in the U.S.
1959	180,000	working miners in the U.S.
1964	130,000	working miners in the U.S.

1940	4.5	tons of coal mined per day per miner
1961	12.1	tons of coal mined per day per miner
1964	16.84	tons of coal mined per day per miner

Finley, *Corrupt Kingdom*, p. 171. The long term decline in the labor force in mining from 1923 to 1962 represented a savings of $240 million in wage costs. John Ed Pearce, "The superfluous people of Hazard, Kentucky," *The Reporter*, January 3, 1964, *30* 34.

[15] A. H. Raskin, "John L. Lewis and the mine workers," *Atlantic Monthly*, May, 1963, *211* 53

[16] The union became reluctant to authorize work stoppages against hazardous conditions, and it discouraged any form of strike activity. The curtailment of strikes was a major concern of the mine owners who sought not only high productivity, but uninterrupted production. As the solvency of the UMWA Fund also depended on these conditions, the union leadership shared this concern. However, neither union nor management were able to eliminate wildcat strikes through which miners demonstrated dissatisfaction with the owners and union officials.

had assumed that a growing economy would easily absorb miners displaced by increasing mechanization. The mechanization of the mines coincided, however, with the recessions of the 1950s and the contraction of the coal market as oil became plentiful. Appalachian miners who chose to remain in the region had difficulty finding employment. The many Appalachians who migrated from the southern coal fields to the industrial cities of the midwest were often forced to accept poorly paid unskilled jobs.[17] Many of these migrants, unwilling to abandon Appalachia permanently, established a shuttle-migration between their rural homes and the industrial cities which strained family and community life.

The UMWA acquiesced in informal arrangements with mine operators which further reduced wages, health benefits and even mine safety. "Sweetheart" contracts were signed by many operators of small mines. In these mines, wages were often below union minimum, safety regulations were not enforced and royalties were not paid to the Fund. To collect a royalty from these "truck" mines might have forced them to shut down, increasing unemployment among miners. Even in mines where the wage and royalty clauses of the contract were enforced, the union often ignored safety standards after 1952. Dust levels are an example. Mechanization increased dust levels and thus the risk of both explosion and lung disease. The only way to force compliance with contractual and governmental safety standards would have been to request inspection teams to close down hazardous mines.[18]

Demand for coal began to increase again in the mid-1960s. Although the acceptance of mechanization by the union had aided the recovery of the industry, unemployment in Appalachia grew. In 1963, fifteen percent of the labor force in eastern Kentucky were looking for work.[19] Actual unemployment was much higher. More jobs were threatened by the introduction of new methods of surface mining which also eroded the land. From 1958 to 1964 no new contract was negotiated, yet wildcat strikes were endemic in the coal fields, as wages, benefits and working conditions grew worse.[20]

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[17] In the decade 1950-1960 the net population loss in Appalachia through migration was in excess of one million people. This figure equaled almost one-fifth of the population of southern Appalachia in 1950. Outmigration was greatest in the mining areas of eastern Kentucky and West Virginia where the population declined 19% during the 1950s. James S Brown and George A. Hillery, Jr , "The great migration, 1940-1960," in *The Southern Appalachian Region A Survey*, Thomas R. Ford, ed. (Lexington, Ky.: University Press of Kentucky, 1962), pp 54, 73.

[18] Dubofsky and Van Tine, *John L Lewis*, pp. 497 ff.

[19] *U.S. News and World Report*, April 29, 1963, 72

[20] UMWA policy was identified so closely with that of the large corporate mine owners that the leadership failed to maintain miners' benefits on a par with those of steel and auto workers. In the

By the late 1950s the Welfare and Retirement Fund began to suffer a chronic liquidity crisis. These financial difficulties were in part a result of changes in the industry during the 1950s and 1960s. With fewer jobs available, an increasing number of union members were drawing their pensions. This situation was exacerbated by the union's acceptance of "sweetheart" contracts, which resulted in fewer owners paying royalties. In addition, the Trustees of the Fund chose unsuccessful strategies for investing its capital.

The union decided to retrench benefits very soon after the Fund was established. As early as 1952 the disability pension was dropped.[21] After 1954, widows, who had been told they would collect their husband's pensions indefinitely, only received them for one year.

Retrenchment of benefits became more drastic and frequent in the 1960s. In 1960, miners who had been unemployed for more than one year were denied health benefits whether or not they had maintained union membership. The following year the pension was reduced from one hundred to seventy-five dollars a month.[22] The Fund announced new "economies" in 1962 which precipitated violent wildcat strikes in Kentucky. That summer all benefits were suspended to miners whose employers had failed to pay royalties. For a decade the UMWA had accepted the non-compliance of these same mines: miners were now penalized for this practice. In the fall of 1962, the Trustees announced the closing of four of the Appalachian regional hospitals.

The closing of the Appalachian hospitals, though mainly a result of the Fund's financial problems, was also an indirect consequence of the hostility of organized medicine in the region to UMWA health services. Appalachian medical societies, resisting group practice, prepayment and the recruitment of medical specialists from outside the region, ostracized physicians employed by the Fund. This hostility hastened the turnover of

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mid-1960s, although the UMWA had pioneered pension and health benefits for members, it was unable or unwilling to demand their expansion Miners received a pension of $85/month while steel workers received $405/month and members of the United Auto Workers, $500/month. Wages in union mines did remain relatively high In 1962 the minimum union wage was $118/week. By 1964 it had risen to $120.75 and an increase to $130.75 was planned for the following year. *Business Week*, November 3, 1962, 49, January 4, 1964, 68, and March 28, 1964, 121. However, union practices, at least until the early 1960s, permitted the proliferation of non-union mines where in 1959 real wages were as low as $4/day. Stephanie Gervis, "Gray spring in Hazard," *The Commonweal*, May, 1963, *78* 220.

[21] This pro-rated pension would have covered disability due to respiratory illness.

[22] After this initial reduction, the pension was raised in early 1965 to $85/month, in late 1965 to $100, and in 1967 to $115. During the Boyle-Yablonski contest for the union presidency in 1969, Boyle raised the pension to $150/month. Brit Hume, *Death and the Mines: Rebellion and Murder in the UMW* (New York: Grossman, 1971), pp. 33, 34, 62, 176.

physicians in the miners' clinics and hospitals, adding to the costs of their operation and interfering with continuity of services.[23]

The decline of the UMWA health care system reinforced miners' traditional wariness of physicians. Their wariness was rooted in the pre-1948 system of prepaid-contract practice. Physicians under contract to the mine companies had often minimized miners' complaints or offered behavioral explanations for them in order to reduce absenteeism and limit disability claims. By the 1950s, many mountain physicians had more sophisticated labels for what they had once called malingering. Miners' dust-related symptoms were frequently described as psychosomatic or neurotic illnesses, which were caused by poverty and by dependence on public and union welfare payments. The miners' desire to be compensated for their disabilities was regarded by some physicians as further evidence of their pauperization.[24]

The Farmington disaster, precipitated miners' hostility toward the companies, the union, the government and the medical profession. Whatever the immediate cause of the explosion at Farmington in November, 1968, the root cause was coal dust. Most mine operators and union officials acquiesced in ignoring dust exposure standards set by the contract and by both Federal and State law. Many inspectors were lax in enforcing regulations. Physicians frequently minimized the debilitating effects of dust on the lungs.

Explosions are a traditional cause of miner militancy, public indignation, and action by industry and the government. Many older miners in the 1960s remembered the furor over dust levels after the disaster at Gauley Bridge, West Virginia, three decades earlier. In 1968 and 1969, however, the miners, feeling betrayed by their union and the government, were responsive to leadership from the Black Lung Association, a recently formed group which was led by disabled miners, staffed by young community organizers, and supported by small but intensely committed groups of physicians and lawyers.[25]

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[23] R Enroth, "Patterns of response to rural medical practice and rural life in Eastern Kentucky," (Ph D dissertation, University of Kentucky, 1967). Also cf. Falk, "Group health plans."

[24] Conference on Mental Health in Appalachia, *Mental Health in Appalachia. Problems and Prospects in the Central Highlands*, U S Department of Health, Education and Welfare, National Institute of Mental Health (Washington, D C. U.S. Govt. Printing Office, 1974), Jerome L. Schwartz, "Rural health problems of isolated Appalachian counties," in R. L. Nolan and J. L. Schwartz, eds , *Rural and Appalachian Health* (Springfield, Ill Charles C Thomas, 1973), Harry M. Caudill, *The Watches of the Night* (Boston. Little, Brown and Co., 1976), *passim*

[25] A history of the Black Lung Association needs to be written. The sources for this history are mainly oral. A number of pamphlets and newsletters exist. Printed sources for the narrative which follows

Black Lung became the symbol of the miners' hostility in 1968 and 1969. Hostility was expressed through both the traditional techniques of strikes and selective violence and new methods of civil disobedience. Miners and their families had both direct and indirect experience of the civic militancy of the 1960s. Military service in Vietnam and shuttle migration to midwestern cities exposed Appalachians to the new articulateness of Blacks involved in the Civil Rights movement. Television provided national coverage of protests, demonstrations and civil disturbances. The Appalachian Volunteers, a community organizing and political education program begun in 1964 with Federal government and foundation support, trained and employed a number of disabled and unemployed miners as community organizers.

Forty thousand West Virginia miners shut down the coal industry in February, 1969. Led by the Black Lung Association, and defying union leadership, thousands of them disrupted the State legislative session in Charleston. These West Virginian strikers insisted that the coal industry be forced to maintain its implicit agreement with them. Mechanization was to have been exchanged for pensions and health benefits. If the UMW could no longer enforce this exchange, the state should at least partially do so through workmens' compensation payments.

The strikers demanded that the West Virginia legislature permit Black Lung to be diagnosed by several methods and not solely by X-ray. The diagnostic methods miners preferred would evaluate functional impairment of breathing capacity rather than evidence of dust accumulation in the lungs. Moreover, any miner who had worked for ten years or more in the mines and who suffered from respiratory impairment would be presumed to have Black Lung and be eligible for compensation.

After three weeks in which the mines were closed, these demands became state law in March 1969. Legal recognition of Black Lung as a compensable occupational disease was a public condemnation of the eroding medical services of the region, of working conditions in the

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include numerous articles by Ben A Franklin in the *New York Times* and by Robert Sherrill in the *Nation* and the lengthy hearings conducted by congressional committees in 1969 and 1972. The importance of the Black Lung Association is assessed in James Branscome, *The Federal Government in Appalachia* (New York The Field Foundation, 1977), and in J Davitt McAteer, *Coal Mine Health and Safety. The Case of West Virginia* (New York: Praeger Publishers, 1977) We are grateful to Milton Ogle, founder of the Appalachian Volunteers in 1964 and currently Director of the Appalachian Research and Defense Fund, for many insights into the Black Lung Association, the politics of coal mining and continuity and change in the Southern Mountains.

mines, of corporate priorities, and of the UMWA's inability to represent the interest of its members.

The debate on Black Lung compensation had hardly been completed by the West Virginia legislature when it began in the United States Congress. The rapid transformation of Black Lung into an issue of national politics occurred as a result of several related circumstances. Most directly, Appalachian congressmen, particularly Representatives Kenneth Hechler of West Virginia and Carl D. Perkins of Kentucky, were eager to respond to a vigorous new political force among their constituents. Even before 1969 Hechler had criticized the leadership of the UMWA and advocated more effective regulation of mine health and safety.[26] Perkins, chairman of the House Committee on Education and Labor, could make any domestic issue a high priority for the Congress. Moreover, Black Lung was a dramatic instance of the problems of occupational health and safety which had begun to interest northern liberal politicians who were closely associated with organized labor. Such Senators as Harrison Williams of New Jersey and Jacob Javits of New York viewed the regulation of coal mines as part of a broader effort to reform the industrial environment. Finally, mining, particularly coal mining, had long been regulated by the federal government. The status of mining as a unique occupation, the "mystique" of coal mining, as one congressional aide put it, helped to legitimize the enactment of unprecedented safety regulations and a compensation program.[27]

The Farmington disaster jolted Federal officials, who reexamined mine legislation introduced by the Johnson Administration a year earlier. This bill did not contain benefits for Black Lung victims, but was exclusively concerned with the prevention of dust-related disease by strict enforcement of uniform dust levels in the mines. Because the UMWA did not strongly support this legislation while industrial lobbies opposed it, the bill was never reported onto the floor of either the Senate or the House.[28]

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[26] Both in the Congress and in his West Virginia District, Representative Hechler repeatedly complained of the union's failure to lobby effectively and concertedly for safety and health legislation Hechler's stand earned him W A Boyle's wrath during the UMWA's president's testimony before the Senate subcommittee in 1969. U S. Congress, Senate, Committee on Labor and Public Welfare, Subcommittee on Labor, *Hearings on S. 355, S. 467, S 1094, S 1178, S 1300, and S 1907 Bills to improve the health and safety conditions of persons working in the coal mining industry of the U S Pt 1* (Washington, D.C. U.S. Govt Printing Office, 1969), p. 456

[27] Eugene Mittleman to Judith F. Stone. Interview, April 11, 1978. Protocols of the interviews are available upon request

[28] *Congressional Quarterly Almanac 90th Congress, 1969* (Washington, D C · Congressional Quarterly, 1970), p 735

In the late winter of 1969, in the aftermath of Farmington and the miners' protests in West Virginia, broad Administration and Congressional support developed for stronger mine safety legislation. Senators and Representatives most sympathetic to the miners demanded a maximum acceptable level of dust of three milligrams per cubic meter of air. The Administration and its Congressional supporters, more sympathetic to the owners' complaints about the prohibitive cost of meeting stringent standards, argued for a dust level of 4.5 milligrams per cubic meter. The House approved a bill with the higher dust level; the Senate supported the lower standard.[29]

The demand by miners to be compensated for the symptoms of respiratory distress they called Black Lung was more controversial. In response to miners' pressure, Hechler and Perkins amended the House version of the Coal Mine Safety Bill to include a Black Lung benefits program similar to that which had recently been enacted by the West Virginia Legislature. Senators Jennings Randolph and Robert Byrd of West Virginia, however, amended the Senate Bill in March, 1969 to provide compensation only for miners disabled by Coal Workers' Pneumoconiosis, not Black Lung.[30] Although compensation had strong support in both the House and the Senate it was opposed by the Administration. Walter J. Hickel, Secretary of the Interior, testified that compensation for disability "is primarily the responsibility of the operators and the states."[31]

After hearings and debate in both Houses, a Conference Committee completed work on a Coal Mine Health and Safety Act in the fall of 1969. The compromise legislation accepted the lower standards for dust levels proposed by the Senate and the more generous disability payments for Black Lung in the House bill. The Conference agreed on a temporary program of eighteen months. President Nixon signed the bill into law, but voiced opposition to the Black Lung program. Fearing a Presidential veto, twelve hundred miners in West Virginia had struck.[32]

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[29] U.S. Congress, Senate, Committee on Labor and Public Welfare, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969 (PL 91-173) as Amended through 1974 Including Black Lung Amendments of 1972, Pt 2* (Washington, D.C.: U.S Govt. Printing Office, 1975), pp. 2912-2914

[30] Early versions of the bill had indicated that the Senators were aware of the Black Lung issue, but remained uncertain about how to address the plight of its victims An Administration bill called for Federal encouragement through grants to the states to establish compensation programs covering miners' disability due to occupational disease. A bill submitted by Harrison Williams of New Jersey, who chaired the Senate subcommittee on Labor, included provisions for federal benefits, but only in those states where miners were not already covered by state law. An earlier bill introduced by Senator Randolph made no reference to Black Lung benefits

[31] U S. Congress, Senate, Committee on Labor and Public Welfare, Subcommittee on Labor, *Hearings on S. 355, S 467, S 1094, S. 1178, S 1300, and S. 1907 Bills to improve the health and safety conditions of persons working in the coal mining industry of the U.S , Pt 1* (Washington, D.C.: U.S Govt. Printing Office, 1969), p. 522

The Black Lung benefits program of 1969 was a result of both the miners' strength and the shrewd political stance of the mine operators. Appalachian congressmen and Northern liberals found it easier to support Federal compensation for miners' disability because the mine owners focused their attack on safety regulations and dust control. Several members of the Congressional staff believed that the operators favored a Federal compensation program to avoid paying for lung disease through contributions to State workmens' compensation insurance funds.[33] Opposition to the benefits program was left to traditional conservatives: defenders of states' rights and critics of government spending and regulation.[34]

For many Congressional liberals and lobbyists for AFL-CIO unions, the debate about mine health and safety in 1969 was a prelude to more general reform of industrial health and safety. A year later, the same Congressional coalition that sponsored the mine legislation introduced the Occupational Safety and Health Act.[35]

Many miners were, however, dissatisfied with the 1969 law. This dissatisfaction was primarily directed toward Title IV, the Black Lung program. Title IV established a temporary program of compensation for "any coal miner who is . . . unable to be gainfully employed . . . due to complicated pneumoconiosis which arises out of . . . employment in the coal mines."[36] Little attention had been given to the complexity of the medical issue during committee hearings; the International Labor Organization's definition of Coal Workers' Pneumoconiosis was accepted without debate. Most Senators and Representatives and their staffs assumed that what the medical profession defined as Coal Workers' Pneumoconiosis and identified through X-rays was the same condition the miners described as Black Lung. They believed there was a precise definition of the disease and a simple method of diagnosis. The miners and the Committee of Physicians had, however, insisted that respiratory impairment be diagnosed by several methods and not solely by X-ray. They had also demanded that any miner who suffered from respiratory impairment and had worked for ten years or more in the mines should be presumed to have an occupational disability.[37]

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[32] The Senate bill was passed unanimously. The debate in the House was sharper; the Black Lung program evoked the most intense criticism. The House opponents of the program were concerned with the possible implications of establishing a federally administered and financed compensation program even on an interim basis. They viewed Black Lung benefits as a possible first step to a federalized workers' compensation program. Nonetheless the House version passed by a wide margin, 389 to 4

[33] Eugene Mittleman to J F Stone Interview.

[34] House debate on amendment submitted by Representative William Scherle of Iowa to delete Black Lung benefits program, October 29, 1969. U.S Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, pp. 2887-2889. These views were reiterated and expanded in the Minority Report of the House Committee on Education and Labor on HR 9212 to amend Title IV of the 1969 Coal Mine Health and Safety Act, August 5, 1971 *Ibid*, pp. 1746-1757. Also see Representative Erlenborn's statement to Senate, Subcommittee on Labor Hearings to amend Title IV of 1969 Act, January 28, 1972 U.S Congress, Senate, Committee on Labor and Public Welfare, Subcommittee on Labor, *Hearings on S 2675, S 2289, HR 9212 to Amend 1969 Federal Coal Mine Health and Safety Act* (Washington, D.C · U S. Govt. Printing Office, 1972), pp. 324-327.

[35] From its introduction in 1968, the mining legislation was linked to broader legislation establishing federal regulation of the work place environment. In his study of the OSHA legislation, Nicholas A Ashford underscored the relation between the passage of the Federal Coal Mine Health and Safety Act in late 1969 and the enactment of OSHA. *Crisis in the Workplace Occupational Disease and Injury. A Report to the Ford Foundation* (Cambridge, Mass.· Massachusetts Institute of Technology Press, 1976), p. 46. In the area of safety there are clear parallels between the two laws. Although no federal benefits program for any occupational disease similar to the Black Lung program was contemplated during the

When extension of the temporary Black Lung program was debated in 1972, competing pressures once again focused on the Congress. Most State governments had not enacted new compensation and safety programs in response to incentives in the 1969 Federal legislation.[38] According to the 1969 law, moreover, when the Federal Black Lung program expired, mine owners or states would be responsible for benefits to disabled miners. The debate in 1972 focused on the definition of the affliction

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formulation of OSHA, the entire law was an implicit and explicit condemnation of the states' regulation of occupational health and safety. The Occupational Safety and Health Act did mandate, as proposed by Senator Javits, a federal study and evaluation of the compensatory aspect of state regulatory policies, and the various workers' compensation insurance programs. This report was released in 1972, finding the states' compensation programs unsatisfactory and outlining eighty specific recommendations for improvement. However, no federal action was taken

[36] U S. Congress, Senate, Committee on Labor and Public Welfare, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969 (PL 91-173) as Amended through 1974 Including Black Lung Amendments of 1972, Pt 2* (Washington, D C · U S. Govt. Printing Office, 1975), p. 3197

[37] These had been the demands of the BLA in February, 1969 and had been incorporated into the West Virginia law. Sherrill, "West Virginia miracle," p 529. Fred Carter, representing miners and widows of southern West Virginia, reaffirmed these demands in his testimony to the Senate Subcommittee on Labor, December, 1971. U S Congress, Senate, Subcommittee on Labor, *Hearings . to Amend 1969 Federal Coal Mine Health and Safety Act*, pp. 100-101

[38] None of the mining states which had not provided compensation for Black Lung prior to December, 1969, enacted legislation to do so in 1970-1971 In January, 1972, of twenty-three coal mining states only eight had compensation statutes which covered Black Lung. U.S Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, p 1815.

the miners and their advocates called Black Lung. In contrast to the Congressional hearing of 1969, physicians from different sectors of the medical community and miners and their advocates debated the etiology and proper diagnosis of miners' respiratory disabilities.[39]

By 1972, the miners and their supporters had adopted a new technique, class-action lawsuits based on community organization, to press for liberalized diagnostic criteria and extended benefits. In a suit filed against the Social Security Administration in 1971, by the Appalachian Research and Defense Fund, the Poor People's Association of Clay County, Kentucky, claimed that Social Security officials deliberately hampered the filing and processing of claims. The use of the X-ray as the sole determination of disability was, moreover, discriminatory.[40]

Physicians had become more sharply divided by 1972. Most of them denied that a causal relation had been demonstrated between underground mining and respiratory problems. However, physicians who attended miners in union clinics generally disagreed, asserting that Black Lung had a precise etiology and could be diagnosed according to clinical criteria. Dr. Donald Rasmussen of the Appalachian Laboratory for Occupational Respiratory Diseases, in Beckley, West Virginia, became the leading advocate for this position, with support from several prominent pulmonary specialists outside the region.[41] In his testimony on the 1972 bill to the Senate Committee, Dr. Rasmussen stated that "the assumption that CWP *per se* is the only disease related to coal mining is not medically justified."[42]

The medical uncertainties and political controversy about Black Lung attracted more national attention in 1972 than in 1969. Consumer lobbyists, notably Ralph Nader, strongly supported extension of the compensation program.[43] More important, Black Lung had become an issue in the struggle for leadership in the miners' union. The Black Lung movement had, from its origins in 1968, been closely identified with rank and file insurgency in the UMWA. The West Virginia Black Lung strike had contributed to the decision of Joseph Yablonski, a union vice president, to challenge W. A. Boyle, Lewis' successor, for the presidency of the UMWA in 1969. Yablonski's unsuccessful campaign strengthened the ties between the union dissidents and the Black Lung movement.[44]

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[39] Roster of physicians supporting amendments and those critical of amendments to Black Lung benefits program, U S Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, pp. 1949-1950.

[40] Finley, *Corrupt Kingdom*, p 290. George William Hopkins, "The Miners for Democracy Insurgency in the United Mine Workers of America, 1970-1972," (Ph.D. dissertation, University of North Carolina, 1976), p 257.

[41] In late 1971, twelve pulmonary specialists met at the Appalachian Regional Hospital in Beckley, West Virginia, to examine miners whose Black Lung claims had been denied. These physicians publicly criticized the exclusive use of the X-ray as a diagnostic method. A few weeks later, under pressure from the Black Lung Association and Dr. Rasmussen, an International Conference on Coal Workers' Pneumoconiosis, sponsored by the New York Academy of Sciences, also called for a revision in the testing for disability in miners claiming Black Lung benefits Hopkins, "Miners for Democracy," pp. 258-259

[42] U.S Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, p 1955

After Yablonski was murdered, early in 1970, union reform and the Black Lung movement became more closely and formally associated. Miners for Democracy, the insurgent faction in the UMWA was, in West Virginia and eastern Kentucky, an extension of the Black Lung Association. The 1972 convention of Miners for Democracy nominated former BLA president Arnold Miller as its presidential candidate. Miller entered a special UMWA national election ordered by the United States Department of Labor after an investigation of fraud in the 1969 election. The Black Lung movement, which had always been linked to dissatisfaction with union policies, was reinforced by demands for greater democracy within the UMW.[45]

Congress had to determine whether the 1969 federal program should be terminated or extended in an atmosphere of increasing activism among miners, continued medical controversy about the nature of miners' respiratory disease, and the states' failure to enact compensation legislation for Black Lung. No significant change in political positions in Congress had taken place since the 1969 debates. Moreover, the Administration had not altered its opposition to a Federal compensation program. In 1972 as in 1969, the combined efforts of legislators representing coal mining constituencies and liberals sympathetic to the demands of labor and committed to federal involvement in the area of occupational health and safety created a majority in favor of a much broader Black Lung benefits act. The Senate unanimously endorsed its version of the legislation as it had in 1969. Critics of the program were again more visible and prominent in the House. There was, however, more opposition to the program in Congress and the Administration than there had been in 1969. Opposition was a result of both a radical departure from traditional concepts of workmens' compensation and occupational disease and the absence of a disaster comparable to Farmington.[46]

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[43] Nader had for a number of years prior to 1972 been concerned with the related issues of Black Lung, mine safety, and union reform As early as 1968, he had written to the Secretary of the Interior criticizing the UMWA for obstructing the improvement of miners' health and safety conditions This action may have indirectly influenced the formulation of the 1968 Johnson mine safety bill Nader was an early vocal supporter of the Black Lung movement In addition, he became deeply involved in Yablonski's opposition movement within the UMWA. Hume, *Death and the Mines*, p 161

[44] In the statement announcing his candidacy, Yablonski underscored the significance of the Black Lung movement· "In recent months the shocking ineptitude and passivity of the union's leadership on Black Lung disease—not to mention its ignoring this massive disability of its men for years—became apparent to the nation, not just to those inside the union." Cited in Hume, *Death in the Mines*, p 173; cf, p. 152 Out of the 25 union districts, Yablonski only won a majority in three during the December, 1969 election One of those three was District 17 in West Virginia, the geographic center of the Black Lung movement. Finley, *Corrupt Kingdom*, p 270.

[45] Hopkins, "Miners for Democracy," pp. 268-271 and Chapters 4 and 6, *passim*

The pressure by miners and their medical advocates to revise the definition of coalworkers' lung disease became the most important issue in 1972. In contrast to 1969, the major coal operators' associations vigorously opposed the benefits program. Mine operators feared that the cost of broadly defined compensable illness and disability would ultimately be transferred to them.[47] The Social Security Administration continued to endorse the definition of total disability in the 1969 law—Progressive Massive Fibrosis or complicated Coal Workers' Pneumoconiosis visible on X-ray.[48]

Committees in both Houses of Congress accepted the miners' view of the diagnosis of disability. The House version of the 1972 bill included one of the major demands of the miners. No claim of disability could be rejected only on the basis of a negative X-ray. The Senate Committee went further in reformulating what would be recognized as a compensable disease. The Senate stipulated that anyone who had worked in the mines for fifteen years or more and who suffered respiratory impairment would be presumed to have an occupational disease. The Senate bill, moreover, specified that benefits would be extended to anyone disabled by respiratory disease associated with mining. Finally, Senator Vance Hartke of Indiana introduced an amendment which redefined disability as inability to do mine work. Carl Perkins supported a similar amendment in the House. These amendments reflected the willingness of powerful Senators and Representatives to replace a medically defined condition, Coal Workers' Pneumoconiosis, with concepts closer to what the miners meant by the term Black Lung, and to establish a much broader definition of the relation between the occupational environment and disease.[49]

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[46] In 1972, 79 Representatives voted against the House version of the Black Lung Benefits Act, 311 voted for it. Ninety-nine Republicans and twenty-two southern Democrats opposed the Conference Report In a February, 1972 letter to Senator Williams, Elliot Richardson, Secretary of Health, Education and Welfare, condemned the proposed amendments. Richardson described the program as an "ill-advised step toward the federalization of Workmen's Compensation at a huge cost to the taxpayers " U.S. Congress, Senate, Committee on Labor and Public Welfare, Subcommittee on Labor, *Hearings on S 2675, S. 2289, and H R. 9212, amending certain portions of the 1969 Federal Coal Mine Health and Safety Act* (Washington, D C . U S. Govt. Printing Office, 1972), p. 24.

[47] The Bituminous Coal Operators Association, the National Coal Association, the National Independent Coal Operators Association, and the American Mining Congress, addressed a joint letter to Senator Randolph voicing their opposition to the proposed amendments U S Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, p 1895. However, one former staff member has suggested that employer opposition to the 1972 amendments was more complex Some industrial representatives urged the passage of the liberalized Black Lung benefits as long as the new broad criteria would be dropped when funding reverted to the state or the owners directly. Certain large mine companies actively encouraged their employees to apply for the Black Lung benefits under the Federal program H. D Reed to J F. Stone, Interview, April 6, 1978.

[48] U S Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, p. 32.

The opposition saw the Black Lung amendments as a dangerous precedent for other industries and afflictions. The proposed legislation permitted such ailments as emphysema, asthma, and bronchitis to be recognized as occupational diseases. Critics perceived more clearly than the bill's supporters the implications of such an unorthodox conception of the relation between work and disease. The presumption amendment, coupled with the broadened range of respiratory ailments that could now be regarded as occupationally caused, implied that the occupation of mining was itself a hazard to workers' health. As Representative John Erlenborn of Illinois noted, the experience of mining coal for a particular period of time "would qualify an individual for benefits."[50] The 1972 Congressional debate on the Black Lung Benefits Act focused on a more important issue than whether or not CWP or Black Lung was a disease: under what circumstances did a physical disability qualify as a compensable occupational disease. Even the strongest advocates of the Black Lung legislation were, however, unwilling to apply the new concept of occupational disease beyond the mining industry.[51]

Congress passed the 1972 act because of the political pressure which miners and their advocates exerted. A congressional staff member recalled that the "decision to extend the benefits . . . . was a political decision not a medical one."[52] Another staff member declared that the medical controversy had a "much smaller impact" than the "outrageous" rates of rejection of miners' disability claims by the Social Security Administration.[53] The Director of the Appalachian Research and Defense Fund agreed that "Congress changed the definition of disability because it became politically necessary to do so."[54] Dr. Rasmussen's advocacy legitimized a decision that Congress took in response to pressure from miners whose claims had been denied, to the political potential of a reformed UMW, and to liberal and labor movement advocates of stricter regulation of occupational safety and health. On May 24, 1972, the Black Lung Benefits Act was signed by a reluctant President. Appalachian miners had, through political action, stimulated social policy to compensate Black Lung as an occupational disease.

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[49] House and Senate Conference report on 1972 amendments to Title IV of Federal Coal Mine Health and and Safety Act of 1969, and Senator Schweiker's statement supporting amendments. U.S Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, pp. 1889, 2014

[50] U S Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, pp 1871-1872

[51] When Representative Thompson of Georgia attempted to extend the legislation to cover quarry and textile workers, the House supporters of the bill quickly defeated his proposal. In general, the supporters of the bill insisted that it was to be *sui generis*. U S. Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, p. 1879.

In late 1972, the miners and their supporters believed they had achieved a striking victory. The Black Lung Benefits Act imposed on the Social Security Administration, and indirectly on the medical profession, a "new" disease. The miners' conception of Black Lung, grounded in their personal experience, became the legal criteria determining compensation. Moreover, the victory of the Miners for Democracy slate, headed by Arnold Miller, in the special UMWA election appeared to impose rank and file control in the union. Many observers viewed the Black Lung legislation as a first step toward a radical redefinition of occupational disease. Similarly, many believed the victory of the Miners for Democracy foreshadowed renewed union democracy and militancy. However, describing and, more important, explaining what has happened since 1972 is not yet a task for historians.

The history of the Black Lung protest suggests a few broader points for historians of medicine and of politics. Even in a highly specialized society, the definition of disease may be wrested from physicians by consumers and elected officials when medical uncertainty and political turmoil converge. Medical uncertainty can be mistakenly dismissed as a euphemism for opposition to social reform because of physicians' social position in a society stratified by class and income. Moreover, physicians are no better than other professionals at separating their knowledge and their values. Medical uncertainty and physicians' values do not, however, account for the rapidity with which political techniques developed in urban and civil rights protests were transferred to Appalachia. What appeared to be radical demands of a vocal minority became Federal policy because members of Congress coalesced around their interest in reelection and their need to ally with colleagues. Finally, citizens' concerns about their influence on decisions affecting work and health are as important to historians of medicine as they are to our colleagues who study politics.

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[52] Eugene Mittleman to J F. Stone. Interview.

[53] Carl Perkins, Chairman of the House Committee on Education and Labor called his colleagues' attention to the inadequacies of the 1969 law He documented the striking disparity which existed between the low proportion of approved claims within Appalachia and the much higher percentage outside the region H D. Reed to J. F. Stone The Social Security Administration gave the total number of claims filed between January, 1970 and March, 1972 as 356,857. (A much greater number incidentally than the Congress had anticipated.) Of those, 166,593 had been approved and 169,999 rejected. U S. Congress, Senate, Subcommittee on Labor, *Legislative History of the Federal Coal Mine Health and Safety Act of 1969*, p. 1948. This was already a large proportion of rejections, but they were by no means evenly distributed within the coal regions In Pennsylvania, 69% of the claims had been approved, 44% in West Virginia, and only 28% in Kentucky received approval. *Ibid* , p. 50.

[54] Milton Ogle to J. F Stone, Interview, April 13, 1978.

THE EMERGENCE OF MEDICAL COMMUNITIES IN MASSACHUSETTS, 1700-1794: THE DEMOGRAPHIC FACTORS*

ERIC H. CHRISTIANSON

During the closing decades of the eighteenth century in Massachusetts a medical community emerged from the loose ties of a few geographically stable but unevenly educated individuals. This community, or more precisely "communities," was not the product of a spontaneous generation of enthusiasm. Rather, the creation of state, county, and city medical societies, of a medical school at Harvard College, and the rhetoric of the spokesmen of these institutions indicates a long-standing recognition of the need for such agencies in order to improve the training of "doctors," and the practice of medicine, and to enhance the public standing of the profession.[1] The appearance of these institutions, however, should not be interpreted as evidence of a widely shared consensus within the medical community on the methods that would best achieve such goals.

Throughout the century the question of "how" these goals could be attained found expression in the writings and actions of doctors especially after 1760. Even at the end of the century the issues remained unresolved. To appreciate the existence of the competing solutions to the problems that confronted the medical profession at that time, we must examine the demographic background, as well as other better documented influences such as personal rivalries, the American Revolution, and the promise of Enlightenment thought. What follows is a two-part analysis consisting of (1) an examination of the basic demographic conditions of eighteenth-

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[1] I use the word "doctor" as it was employed by medical practitioners of all levels of training and by the general public in the American colonies, especially Massachusetts, during the period 1700-1792 As the chart below reveals, most of the practitioners for whom there is adequate information styled themselves as "Dr." or "Doctors" [see my doctoral dissertation, "Individuals in the Healing Arts and the Emergence of a Medical Community in Massachusetts, 1700-1792: A Collective Biography" (University of Southern California, 1976), p. 27]. For an elaboration of this usage, see Vern L Bullough, "The term 'doctor,' " *J. Hist Med* , 1963, *18* 284-287. The full-time/part-time status of doctors at that time is not an obstacle to this investigation; as Whitfield J. Bell, Jr., among others, has observed, very few doctors could survive solely on their medical incomes ["A portrait of the Colonial physician," in *The Colonial Physician and Other Essays* (New York: Science History Publications, 1975), pp 1-25, 13, 15-16].

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century Massachusetts affecting medical practitioners, specifically those of mobility and population growth, and (2) the identification of a few contemporaries who considered the patterns of settlement as obstacles to organization, and a brief investigation of what they proposed to do about those conditions.

For three years Ezra Baker had been practicing medicine in Williamstown, a community founded in 1765 in the northwest corner of Berkshire county.[2] Until his arrival in 1789 the town had gone without the services of a resident doctor. His practice in that frontier community continued what Dr. Samuel Fuller—a London physician, *Mayflower* passenger, and Plymouth church deacon—had started 170 years earlier, namely, the medical settlement of Massachusetts.[3] Preceded by others in

TABLE I

Title Styled at Death

Title	N	% of Total
Medical	861	62.8
Medical & other	13	9
Esquire	20	1.5
Deacon	1	.1
Other	42	3.1
Missing*	433	31.6
Total	1,370	100.0%

* Includes also those men for whom no title was recorded in vital records, wills, probate records, and estate administrations.

Apparently even the most marginal practitioner thought of himself as a doctor. After mid-century, however, the response of doctors with some training to the indiscriminate use of the title "doctor" indicated a growth in concern over the issue of who could legitimately claim the title of "doctor" and thus practice medicine. For a more extended discussion of the "doctor" problem, see my essay, "The medical practitioners of Massachusetts, 1630-1800: Patterns of change and continuity" in Philip Cash, Eric H Christianson, and J. Worth Estes, eds., *Medicine in Massachusetts, 1630-1820,* Colonial Society of Massachusetts *Publications,* vol 54 (Boston: The Society, tentative publication date May 1980).

[2] *Vital Records of Williamstown* (Boston: New England Historic and Genealogical Society, 1907), p. 138, and Bureau of the Census, *Heads of Families At the First Census, 1790* (Washington, D.C : U.S. Govt. Printing Office, 1908), p. 38.

[3] While the particulars of his training are unknown, Fuller's occupation was "physician" in the *Mayflower* passenger list, and he was frequently referred to as "Dr Fuller" in the ship's logbook, and by officials of neighboring Massachusetts Bay colony (Henry R. Viets, *A Brief History of Medicine in Massachusetts* [Boston: Houghton Mifflin, 1930], pp 11-12) As Bell argues ("Portrait," p 13), the "clerical physicians should be considered along with other doctors " True, Fuller was not a minister, only a deacon, but clerical doctors became less prominent in the eighteenth century, no doubt casualties of overall societal specialization. On this point see also my dissertation, "Individuals in the Healing Arts," p. 129

Virginia, Fuller's medical heirs were drawn by the magnetic influence of virgin land and growing population. During the years that separated Fuller and Baker new towns were carved out of the wilderness and doctors joined other colonists in the hinterland.

Between 1700 and 1790, as the figures in Table I indicate, the population of Massachusetts increased by a mean average of 24.3% per decade.[4] To accommodate this increase and the corresponding rise in the demand for more land, the House of Representatives granted charters of incorporation to 172 towns. The geographical thrust of much of this growth, reflected in part by the founding of towns in the western regions, necessitated also the creation of two additional counties—Worcester in 1731 and Berkshire in 1761—raising the total number to eleven. While intimately related to the overall expansion of settlement, the figures for doctor growth reveal a similar, but much more dramatic, pattern than that of the general population.

In a society that placed few restrictions on the career choices of its members, the expansion of settled areas and the increase in population provided many opportunities for those who wished to try their hand at doctoring their neighbor's complaints. According to Table I, with a mean average increase of 32.4% per decade, the number of doctors in Massachusetts doubled more rapidly than did the population of the entire state (26.8 years for the number of doctors and 37.4 years for the entire population).

TABLE I*
POPULATION GROWTH OF MASSACHUSETTS

Decade	N. New Towns	Total Pop.	N. of Doctors	Ratio
To 1700	81	70,000	70	1:1,000
1710	5 (1709)	77,700	104	1:747
1720	19 (1719)	89,000	130	1.687
1730	16 (1729)	121,350	192	1:632
1740	21 (1739)	153,350	244	1:628
1750	5 (1749)	180,000	316	1:569
1760	3 (1759)	215,000	388	1:554
1770	28 (1769)	235,308	478	1:492
1780	58 (1779)	268,627	643	1:417
1790	17 (1789)	378,787	725	1:522

* excludes District of Maine

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[4] The information in Table I is based on my dissertation, "Individuals in the Healing Arts," p. 29. The most helpful sources for estimates of population and mobility include Evarts B Greene and Virginia D. Harrington, *American Population Before the Federal Census of 1790* (New York: Columbia University

Growth rates for the general population and its sub-group of doctors yield a remarkable ratio of practitioners to population. From a low of about one doctor to every 1,000 inhabitants in 1700, the ratio increased steadily to the high of 1:417 in 1780. The ratio cited for all of the states during the Revolutionary era, 1:600, is based on Joseph Toner's calculations during the 1870s.[5] If this figure is a fair estimate, then the 634 doctors in Massachusetts represent nearly one-fifth of all the practitioners in all the states during the 1770s. When the figures for doctor-growth in Massachusetts are related to the first colonial census of 1765, and to the first U.S. census of 1790, we discover that there was about one doctor to every eighty-six families in 1765, and one to every ninety in 1790.[6] These data merely suggest that in the populous or rapidly growing areas the presence of doctors, either with or without training, might have been noted by contemporary observers.

Naturally, most of the medical men came from the eastern areas that were more densely populated and which consistently produced more doctors than the developing west; Suffolk, Middlesex, and Essex counties account for nearly one-half of the total of 1,370. Less than ten percent (108 or 7.8%) of the total came from areas bordering Massachusetts or from Europe. Although Suffolk was the front-runner, no area dominated every decade of birth, and all of the counties attracted more doctors than were born there.

Doctors in eighteenth-century Massachusetts were a mobile lot, both before and after they started practicing. For example, while only seventy-eight percent, or 151 of the doctors born in Suffolk county began to practice there, a total of 252 actually started their careers there. As the

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Press, 1932); U.S. Bureau of the Census, *Historical Statistics of the United States. Colonial Times to 1957* (Washington, D.C.. U S. Govt Printing Office, 1961); J. Potter, "The growth of population in America, 1700-1860," in D E. C. Eversley and D. V. Glass, eds., *Population in History Essays in Historical Demography* (Chicago: Aldine, 1965), P M. G. Harris, "The social origins of American leaders. The demographic foundations," in *Perspectives in American History*, 1969, *3* · 157-344; Robert Higgs and H. Louis Settler, III, "Colonial New England demography· A sampling approach," *William and Mary Quarterly*, 1970, *27* 282-294; Philip J Greven, Jr., "The average size of families and households in the Province of Massachusetts in 1764 and in the United States in 1790. An overview," in Peter Laslett and Richard Wall, eds., *Household and Family in Past Time* (Cambridge. The University Press, 1972), pp. 545-560; and David Grayson Allen, "The Zuckerman Thesis and the process of legal rationalization in provincial Massachusetts," *William and Mary Quarterly*, 1972, *29* 443-468.

[5] *Contributions to the Annals of Medical Progress and Medical Education in the United States before and during the War of Independence* (Washington, D.C.· U.S Govt. Printing Office, 1874), pp. 105-106. For the ratios in select towns and colonies see Whitfield J. Bell, Jr , "Medical practice in Colonial America," *Bull. Hist. Med.* 1957, *31:* 442-453, esp 447.

[6] Greven, "Average size," pp. 553-555

seat of government for the province and Suffolk county, and as entrepôt to the Commonwealth's developing interior, Boston's teeming population offered a potential clientele for recent medical immigrants from Europe as well as for ambitious men from adjacent counties. Some of the mobility observed before doctors started practicing may also have been change of residence by their families while they were still youths, but the extent of this movement is difficult to determine. Once they started to practice, however, they continued to travel. With information available for 1,017 individuals (74.2%), it is found that 387 or 38.1% went from one town to practice in another, and for 278 (27.3%) of them the destination was another county or another state. Additional data indicates that at least 122 (8.9%) settled in a third town, and a few men moved as many as six times. Also, doctors were generally more mobile than the rest of the population.[7] As the number of doctors increased after mid-century, so did their mobility.

The most active period of new town formation, 1770-1790, according to Table I (and many of these new towns were spin-offs from parent towns), coincides with the increase in doctors and their levels of mobility. These new towns, as Ezra Baker's experience in Williamstown suggests, did not always attract resident doctors immediately after their incorporation, and instead, towns relied upon the services of nearby practitioners.[8] Throughout the century the number of doctors may have reached what could be termed a saturation point in some areas because so many doctors moved on to other towns and counties. They were moving into and out of the most heavily populated or rapidly growing counties, such as Essex, Suffolk, Worcester, and Berkshire (the most unstable counties which correspond to parts of Regions III and IV on the map), where most of them were born and where most of the opportunities were apparently found. Most of those who moved were perhaps not aware of the crowded conditions elsewhere, or they were confident that there would always be enough business for another doctor. Though inconclusive, some of the evidence suggests that individuals might have been induced to move for reasons unrelated to medical practice; after all, medicine was a full-time career for very few. Yet, the increase in the number of doctors and in their relocation, which was especially pronounced in Regions III and IV, presents another possible factor in mobility: competition.

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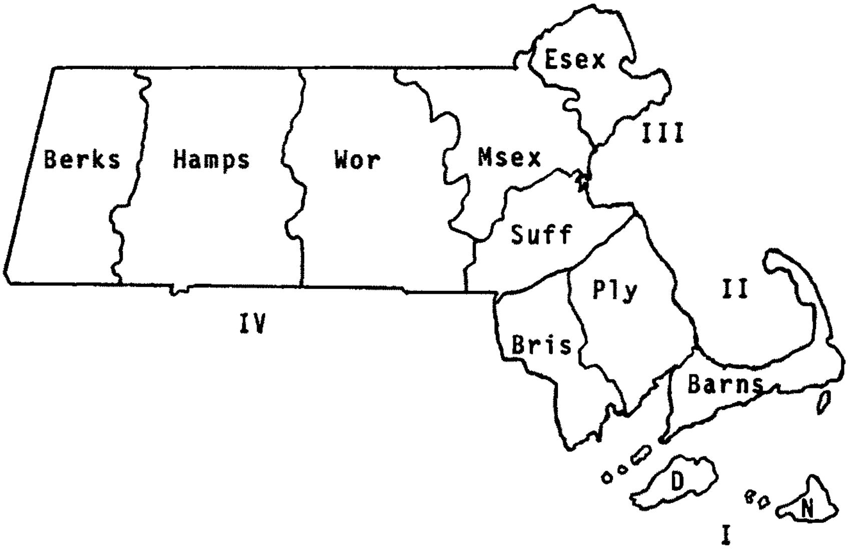
[7] Christianson, "Individuals in the Healing Arts," p. 56

[8] *Ibid.*, pp. 42-48.



Mobility for doctors beginning to practice in the period 1761-1780 reached the per-decade high of thirty-four percent. During the 1770s, as Table I shows, over 200 individuals began to practice, a figure that represents not only sixteen percent of all the practitioners, but also a 43.1% increase over the previous decade. Of this number, however, less than one-half (93) had served an apprenticeship. For the entire period after 1751, apprenticeship trained doctors constituted less than half of all the beginners; those with a bachelor's or other degree, less than thirty percent. Also while the self-taught doctors were greater in number throughout the century, the level of training achieved was on the rise. For example, during the second half of the century the number of apprentice-trained beginners increased by nearly thirty percent (28.3%) over those who began either before or during the first half-century.[9] Yet, regardless of time or location, those with a bachelor's degree or apprenticeship were less likely to become mobile than the others.[10]

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[9] The results of the present study show that the apprenticeship system grew stronger after mid-century. My conclusions, then, do not agree with Bernard Bailyn's statement that during the eighteenth century "evidence of its decline was as clear in its internal characteristics as it was in quantitative decrease" (*Education in the Forming of American Society: Needs and Opportunities for Study* [Chapel Hill: University of North Carolina Press, 1960], pp. 30-31.) One author estimated the ratio of "regular" doctors to "irregular" practitioners to be 1:10 in the colonies at mid-century. (Joseph F. Kett, *The Formation of the American Medical Profession: The Role of Institutions, 1780-1860* [New Haven: Yale University Press, 1968], p. 170.) But the results I have for Massachusetts at any given time during the eighteenth century yield, at the most, a ratio of 1:3. While only 488 (36%) of all the practitioners in Massachusetts were apprenticeship-trained, in proportion to other colonies the Bay Colony might have had a larger number of

The wars with France and England, 1754-1781, contributed to the displacement of residents throughout Massachusetts, but the movement of doctors into and out of Regions III and IV—each having a surplus of doctors—can be attributed also to competition between trained and untrained rivals. Only indirectly did the wars and smallpox epidemics of the period provide untrained newcomers with much of a chance to become medical practitioners. Men without prior experience were less likely to become military surgeons or inoculators than those with training.[11] In the absence of an experienced local doctor who had gone into military service, many untrained men may have moved into the temporarily vacated spot and attempted to take over the absent doctor's business. Upon the doctor's return from battle, however, intruders were usually forced to seek business elsewhere.[12]

These conditions were pronounced in Regions III and IV, where the rudiments of medical communities, or what Dr. Benjamin Waterhouse called "an amicable association of neighboring practitioners," were becoming apparent.[13] The level of educational attainment of doctors resident in these areas, whether or not they served in the military, was high. A contributing factor to the low level of mobility and high educational achievement in these areas was the presence of multi-generation medical families. Nearly twenty percent (271) of all the doctors either came from (15.7%) or married into (4.1%) medical families, and virtually every member of the medical family subgroup had at least served an appren-

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regulars among the total number of doctors. See Christianson, "Individuals in the Healing Arts," pp. 114-116

[10] The T-TEST facility available in the Statistical Package for the Social Sciences (version 7.01) produced a strong (.001 level) indication of the true difference between the two populations of movers (those with college or apprenticeship, and those without)

[11] Using the SPSS subprogram CROSSTABS, dichotomized variables (1 = yes, 2 = no), such as apprenticeship, college, inoculation experience, and military medical service were crosstabulated and produced results indicative of a strong association between sets of variables The crosstabulation of apprenticeship and surgeon, for example, produced a Chi Square of 38 671 with 2 degrees of freedom at a significance level of .0001.

[12] My observations support at least some of the conclusions reached by Rhoda Truax, for example, who stated that the regular town doctors were pressed into military service, thus creating vacancies to be filled by self-taught men Yet, I do not agree with her belief that the Revolution had broken down the apprenticeship system (*The Doctors Warren of Boston First Family of Surgery* [New York· Houghton Mifflin, 1968], p 85)

[13] *The Rise, Progress, and Present State of Medicine Delivered at Concord July 6, 1791 before the Middlesex Medical Association* (Boston Thomas and John Fleet, 1792), p. 28.

ticeship.[14] In part, then, it was the reaction of the most geographically stable and educated doctors to the increase in number and visibility of those transient individuals, whom the regulars considered unfit to call themselves "Doctors" or to practice medicine, that eventually led to the creation of more formal institutional arrangements and professional relationships. These relationships were based on an important experience that they shared in common—the apprenticeship system.

All of the attempts to reform medical instruction or regulate medical practice, from that of the first, but short-lived, Boston Medical Society of the 1730s to the formation of the Worcester Medical Society in 1794, (with the exception of The Confederacy of Physicians in 1780),[15] were proposed and supported largely by doctors who had received at least apprenticeship training. Yet, by the turn of the century, the members of these groups, who shared so much in common, had not reached a viable state-wide agreement on which of two basic methods—voluntary associations (whether they were limited exclusive groups or more open inclusive groups), or coercive legislation—might produce effective regulation of their profession. Some of the reforms proposed during the period indicate sensitivity to the importance of the role played by demographic factors in the attainment of physicians' goals, others do not. Near the end of the century, it became obvious that neither British nor American medical reformers gave sufficient attention to the "dominant position of domestic practice and folk medicine." Both groups of reformers, then, sought a monopoly on practice "for trained physicians who constituted only a fraction of the total number of medical advisors."[16]

Naturally, with the growth of population during the second half of the century, the recognition by medical reformers that the number of doctors had increased was more evident than earlier in the century. For example, the failure of the Boston Medical Society, an organization conceived by the only M.D. in the area, William Douglass, to achieve permanence is indicative of the futility of attempting to transplant intact the medical institutions of European (predominantly English) society to colonial Boston.[17] With a boost from the epidemics of the time, business was good for doctors around Boston and competition was not an important factor.

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[14] Christianson, "Individuals in the Healing Arts," p 73

[15] Not one of the four incorporators of that long-forgotten group served an apprenticeship or received any formal training. See my article " 'The Confederacy of Physicians' An historical oversight?" *J Hist Med.*, 1977, *32*· 73-78.

[16] Kett, *The Role of Institutions*, p 31.

[17] Christianson, "Individuals in the Healing Arts," pp 155-160

Furthermore, Harvard College was not interested in Douglass' offer to endow a chair in physic. Nor was the House of Representatives, itself a body comprising competing interest groups from around the colony, about to restict the individual's right to practice medicine by granting regulatory powers to an exclusive Boston organization. The realization of most of Douglass' objectives late in the century, however, was not to be accompanied by effective regulation. Conditions within society and the profession would have to change before viable reform tactics encompassing more than one town were widely endorsed. The existence of any medical institution indicates local interest and concern and a willingness to modify standards and goals to fit contemporary societal conditions.

In what can be viewed as a response to the growing ratio of number of doctors to population by 1760, Dr. Nathaniel Ames, Jr., of Dedham, Suffolk county, announced in the 1765 edition of his almanac that the high rate of unemployment created by the economic recession following the French and Indian War had produced many men "having Poor stomachs to return to the stall or plough . . . commence QUACKS and call themselves Doctors."[18] A Harvard College graduate, Ames was trying to protect the lucrative clientele bequeathed to him by his father, with whom he had served an apprenticeship, upon his death in 1764.[19] Threatened by competition from quacks, who he realized could move freely and perpetrate fraud on the unsuspecting inhabitants of other towns, Ames joined with others in an attempt to form a group that would include only trained men, those with at least an apprenticeship. In defense of his position, Ames declared that "Titles are marks of honest men and wise, The Fool or Knave that wears a title lies."[20] Exclusive societies that had to remain secret until their numbers were sufficiently established would protect society from quacks by visibly differentiating legitimate doctors from imposters.[21] Secrecy, of course, indicated the presence of fear, the fear of being outnumbered by the enemy. Secrecy also precluded legislative action. In the absence of effective licensing the medical society would be-

[18] "An Elegy On the Death of the Late Dr. Ames [Sr.]," in *An Astronomical Diary, or Almanack, for 1765* (Boston Edes & Gill, Green & Russell, and Fleet, 1764), n. p.

[19] The most useful biographical sketch of Ames is Clifford K Shipton, *Sibley's Harvard Graduates* . . , 17 vols. to date (Boston. Massachusetts Historical Society, 1933--), 15: 3-15

[20] Ames, "An elegy," n p.

[21] The attempt in 1765 to form a medical society involved apprenticeship-trained doctors from Suffolk, Middlesex, and Plymouth counties, but Boston's medical establishment was never informed The secrecy surrounding this effort is revealed in a letter of 22 March 1765 from Dr Moses Baker to Dr. Cotton Tufts: "It is deemed that none be acquainted with it but ye gentlemen mentioned in your paper " (loose manuscript letter in the Francis A Countway Library of Medicine, Boston).

come more useful if it strengthened, rather than replaced, the valuable apprenticeship system under which most members were trained.

By 1780, at the time of the highest ratio of number of doctors to population (see Table I), army surgeon John Warren noted with alarm the generally low level of training among those then entering the ranks of practice.[22] His response to these conditions took form, with the support of others, in the creation of the second Boston Medical Society, and, in the following year, of the Massachusetts Medical Society, that by charter could accept only 70 members who must have had at least apprenticeship training. Such limitations on membership discriminated against the majority of practitioners, including both the self-taught, and the apprentice-trained, most of whom also possessed an undergraduate degree. With such rigidly exclusive membership requirements and being troubled by indecisiveness, these groups could not provide workable solutions to the problems posed by uncontrolled entrance into medical practice. The introduction of formal academic requirements for medical practice by the creation in 1783 of a medical school at Harvard College in Cambridge would meet with similar approval, as would Boston-based licensing authorities. And while their future members had long been acquainted professionally, after 1787 district medical societies implemented practical, if somewhat naive solutions to some of these problems.

Expressing distrust for the aspirations of the Boston medical community, local groups responded to conditions as they perceived them in their immediate areas by extending membership to the self-taught but long-practicing resident doctors.[23] Though few of these groups would remain consistently active in the future, from their formation the county societies, first proposed in 1785 by the Council of the state society, proved to be more successful than their creators anticipated; they became too autonomous, too independent, perhaps rivals of the Boston-based state society.[24] For example, Dr. Eldad Lewis, the first president of the Berkshire Medical Association, organized in 1787, recommended in an address of the same year that all practitioners in the county be invited to join. But if anyone refused, he cautioned his audience, they "would be treated with entire neglect by all that are members."[25] Exhibiting even fewer restraints, the Middlesex Medical Association, formed in 1789, believed that its members should seek out all beginners, regardless of qualifications, "whom this association can in any way serve or encourage."[26] In effect, the "doctor" and the "quack" to use Dr. Ames' terms, could belong to the same groups; the latter, then, would be eliminated by membership, which, in turn would promote mutual improvement through frequent association between mentors, colleagues, and pupils.

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[22] A Harvard graduate, and former pupil of his brother, Dr Joseph Warren, John Warren was not without evidence to support his observation (Christianson, "Individuals in the Healing Arts," pp. 175-177). During the Revolutionary era over 100 men from Massachusetts were army or navy surgeons, surgeon's mates, and hospital personnel; yet fewer than half had received any formal training upon entering the service But during one intense year, Warren worked mostly with colleagues trained much as he had been. Philip Cash, *Medical Men At The Siege of Boston, April, 1775-April, 1776, Mem Amer Phil. Soc.*, Vol 98 (Philadelphia, American Philosophical Society, 1973), pp 157-163

[23] Medical society organizers in counties other than Suffolk had good reason to perceive the Boston-based Massachusetts Medical Society as hypocritical, distant, and unresponsive to local needs On the first attempt to incorporate a state medical society, the fourteen petitioners were Suffolk county practitioners, and already founder-members of the Boston Medical Society. The state legislature accepted a revised charter proposal, yet nearly one-half of the 31 incorporators resided in the Boston area There were only three founders from Hampshire county, and one each from Worcester and Berkshire Not until 1803 was the MMS charter revised to increase the membership limit of seventy fellows (who were nominated and elected by fellows), and to eliminate the distinction between licentiates and fellows. Ambitious medical students in areas distant from Boston were frustrated because only in Boston could

While the vitality of some county medical societies diminished with time, in comparison to the state society their membership lists were relatively large. By 1790, as Table II indicates, only about ten percent of all practitioners belonged to the state society. In contrast, the Berkshire Medical Association, with twenty-five members, accounted for sixty-seven percent of the county's thirty-seven doctors. Such involvement at

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they be examined and recommended by the Censors of the MMS, however, the faculty, and graduates, of the Harvard Medical School at Cambridge also claimed the right and honor to certify Dozens of western county doctors, with training equivalent to their eastern counterparts, who were fellows and licentiates, felt snubbed and eventually formed groups in their own areas that they could belong to (Walter A Burrage, *A History of the Massachusetts Medical Society, With Brief Biographies of the Founders and Chief Officers, 1781-1922* [n.p.: Privately Printed, 1923], pp 16, 68-84, 323-349) Clearly, then, when the reorganization of the MMS began in 1803, the state society had not, as one author claims, spent twenty years "wooing potential members" (Kett, *The Role of Institutions*, p. 15).

[24] The wording of the proposal to create corresponding committees in the counties reveals the limits of the information network between the island-like medical communities " . . to meet, correspond & communicate with any individuals, or any Association of Physicians, that have been, or may be formed in their respective counties, and make reports of their doings from time to time " (Burrage, *Massachusetts Medical Society*, p 323). Only a few members of the county societies, usually the principal officers, provided what little direct contact did exist between local and state groups Few limitations (and granted, few explicit directions either), were imposed on corresponding committees or recently formed medical associations Yet their proposed relationship with the state society was implicitly subordinate, the parent organization would attempt to reserve for itself the right to examine and to recommend aspiring practitioners to the citizens of the commonwealth. Thus, the position of one author, who concluded that the corresponding committees were too limited, is difficult to accept without qualification (Kett, *The Role of Institutions*, p 15).

[25] Manuscript Records of the Berkshire District Medical Society, 1785-1864, Berkshire Medical Institution, Pittsfield, Massachusetts, p 4.

[26] Waterhouse, *The Rise, Progress*, p. xii

TABLE II[27]

Institution		Members	1790 County Population	Ratio
Berks. Med. Assoc.	1787	25	30,491	1:1,219
Msex. Med. Assoc.	1789	24	59,681	1:2,487
Worc. Med. Soc.	1794	46	56,807	1:1,234
MMS	1781	67	378,787	1:5,657

the county level was not unusual for that time. Voluntary associations, including medical societies, moral reform groups, and the Masons, operated most vigorously at the local level. Such associations implied active participation on a personal basis, "not an anonymous membership" in an organization many miles away.[28]

If Philadelphia doctors dominated medicine in Pennsylvania, their Boston counterparts did not enjoy a similar position in Massachusetts. Boston's experience was atypical compared to that of most of the state. And while its medical community attempted to establish workable criteria for membership in formal professional associations and qualifications for practice, it could not maintain uniform voluntary compliance among the rank and file throughout the state. Indeed, not until after the turn of the century would the Harvard Medical School be moved across the Charles River to Boston, thus securing enhanced control for Bay Town medical reformers over licensing and practice in the eastern part of the state. Even without the urban setting so typical of the eastern part of the state, by 1790 the western counties were the most populous. That this area had taken a different road to improvement was clearly evident by the 1820s with the formation of the Berkshire Medical Institution.[29] So, among other factors, the geographical distribution of population, doctors with various types of training, and educational institutions (e.g., the apprenticeship everywhere, medical lectures in Boston only), precluded the centralization of medical authority in Boston.[30]

Also, medical reformers around the state secretly expressed the idea that the differences between the knowledge of the M.D., the apprenticeship-trained, and the conscientious self-taught practitioner, and between the effectiveness of their therapeutics were often overestimated.[31] These men seemed to favor strengthening educational standards for medical practice, but they could not agree on how to accomplish such a goal. Considering the fact that virtually all of the medical societies' organizers were at least apprenticeship-trained, few voices were raised against that traditional and effective institution. But the learning by doing approach could be augmented by the introduction of a formal pedagogical technique, the medical lecture. The acceptable modes of acquiring proficient knowledge in some occupations and learned professions, such as medicine, were changing. A product of some of those changes, the problem of whether or not one man, or a group of men had the superior knowledge and legal right to interfere with the practice of medicine by others was not resolved. Furthermore, the success anticipated by some leaders of local medical communities in improving standards and impeding the circulation of "doctors" without training was based on faith in

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[27] Christianson, "Individuals in the Healing Arts," p 190.

[28] Richard D Brown, "The emergence of Voluntary Associations in Massachusetts, 1760-1830," *J Voluntary Action Research*, 1973, *2*. 64-73, esp. 67

[29] Here I do not concur with Kett, *The Role of Institutions*, p 15, who states that even though the center of population had moved west since 1780, the medical profession was "not organized outside of Boston." And if eastern physicians had not been particularly concerned with, or informed about medical activity in Berkshire county, (*ibid.*, p. 77), they would express no little concern after the organization in 1823 of a rival to Harvard's medical school in Pittsfield

[30] These circumstances were unique neither to Massachusetts nor to the eighteenth century. One example illuminating some of these features is Vern L. Bullough, "Population and the study and practice

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of medieval medicine," *Bull Hist Med* , 1962, *36* 62-69. Similar, though not identical conditions existed in up-state New York in the 1840s (Kett, *The Role of Institutions*, pp. 35-46, Gert H. Brieger, ed , *Medical America in the Nineteenth Century Readings from the Literature* [Baltimore and London: The Johns Hopkins University Press, 1972], p 59, and Daniel H. Calhoun, "Fear of Individuality: John W Francis and the New York Medical Community," in *Professional Lives in America Structure and Aspiration, 1750-1850* [Cambridge, Mass Harvard University Press, 1965], pp 20-58) The mobility of New England physicians throughout antebellum America is discussed in William Barlow and David O Powell, "To find a stand. New England physicians on the Western and Southern frontier" a paper delivered at the 50th annual meeting of the American Association for the History of Medicine, Madison, Wisconsin, 13 May 1977 That conditions in Massachusetts had not changed radically by the 1840s is evident. See Barnes Riznik, "The professional lives of early nineteenth-century New England doctors," *J. Hist. Med.*, 1964, *19*: 1-16

[31] In the absence of a basis for objective evaluation of the practitioner's regimen, traditional medicine, with or without academic trappings, tended to divide physicians, but late in the nineteenth century scientific medicine tended to unify them. See William G. Rothstein, *American Physicians in the Nineteenth Century From Sects to Science* (Baltimore and London: The Johns Hopkins University Press, 1972), pp. 12-15, 323. Prior to 1860, a common nineteenth-century belief had been that a medical degree would separate the regulars from the irregulars (Kett, *The Role of Institutions*, p. 180). A similar belief had been common in eighteenth-century Massachusetts; the apprenticeship system and membership in local societies would eliminate irregulars. The difficulty of determining the nature and quality of even the trained physician's therapeutics is made clear by J Worth Estes, M.D , in his scientifically and historically thorough "Therapeutic Practice in Colonial New England," in Cash, Christianson, and Estes, *Medicine in Massachusetts* Without the rare account book data discovered by Estes, the difficulty of interpreting rather ambiguous therapies is detailed in my article, "The description and treatment of the fly-blown ear: An aspect of science and medicine in Colonial America," *Melsheimer Entomological Series*, July 1979, *26* 1-12.

voluntary associations; groups that demanded naïvely the surrender of some individual freedom for the benefit of society and the profession.

Organizers of local medical societies noted certain accomplishments with pride in particular their on-going efforts to "eliminate the manifold inconveniences" that resulted from the "want of a regular and uniform method of educating pupils in physick, especially in the country."[32] They also heralded the promise of the future for medicine's role in the new republic. The rhetoric of a few men, however, implies a more cautious optimism based on their recognition of professional and demographic limitations to the imminent success of their plans. In 1791, one of these men, Dr. Benjamin Waterhouse, president of the Middlesex Medical Association, summarized to his audience of both trained and untrained practitioners the importance and limitations of their achievements by stating that the "various institutions founded within a few years in this Commonwealth, have laid a broad foundation for improvement in science," the arts, and in medicine.[33]

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[32] Dr Eldad Lewis, Presidential Address to Berkshire Medical Association, p. 4

[33] Waterhouse, *The Rise, Progress*, p 27 But one member of the Massachusetts Medical Society expressed not optimism, but pessimism. Also a future member of the Worcester Medical Society, Israel Atherton complained that the efforts of the state society had "not in the least degree prevented the Increase of Empirics" (Israel Atherton to the MMS, Lancaster, 20 October 1789, BMS b. 75 1 F72, courtesy of the Boston Medical Library, Francis A. Countway Library of Medicine, Boston).

JAMES DE BERTY TRUDEAU: PHYSICIAN-NATURALIST

GEORGE E. GIFFORD, JR.

James de Berty Trudeau (1817-1887) was far more than a nineteenth-century American physician. He was an ornithologist, an artist associated with the Audubons, a traveler amongst the Osage Indians in 1840, a Brigadier General of artillery with the Confederate Army, and the editor of a medical journal. His diverse career is most revealing, and yet also characteristic, of the medical and natural history activities of his era.[1]

Trudeau was born September 14, 1818, the second child and eldest son of René and Adèle Trudeau, in Jefferson Parish, just north of New Orleans. His paternal great-grandfather was a Canadian, Jean Trudeau, who traded with the Indians, learned the language of the Chickasaws and Choctaws, and was appointed interpreter general and Indian commissioner. James de Berty Trudeau's paternal grandfather, Xenon Trudeau, was Lieutenant Governor of the Illinois country from 1792 to 1799. Jefferson Parish was the site of the family sugar plantation which had many Negro slaves and where the life was one of abundance and luxury.[2]

Young Trudeau was sent to the College of Louis-le-Grand, Paris, about 1827 but due to poor health, he transferred to a military school in Switzerland. Before 1835 he returned to Paris to begin his medical education.[3] In October, 1835, Trudeau enrolled as a medical student at the University of Pennsylvania under Dr. Joseph Pancoast[4] and the next year received his M.D. degree.[5]

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[1] Archibald Malloch, "James de Berty Trudeau: Artist, Soldier, Physician," *Proceedings of The Charaka Club*, vol 3, pp. 101-113. (New York: Morningside Heights Published for the Charaka Club by Columbia University Press, 1935), Edward Livingston Trudeau, *An Autobiography* (Philadelphia and New York Doubleday Page, 1916), pp. 8-13, Charles Patton Dimitry "Louisiana Families," *Times-Democrat*, New Orleans, August 21, 28, 1892, Articles XXVII and XXVIII, John F. McDermott, ed., *Tixier's Travels on the Osage Prairies* (Norman: University of Oklahoma Press, 1940), pp. 8ff, 10-12, 13, 14, 74, 75, 86ff, 107, 143, 179, 217, 246, 264, 279. The most recent biographical account is by Joseph Ewan, "James Trudeau and the recent discovery of a collection of paintings of eggs of North American birds," *Tulane Studies in Zoology*, 1962, 9, No. 5 259-263.

[2] His paternal grandmother, Eulalie de Lassize Trudeau, the widow of Xenon Trudeau, in 1858 had a plantation across the river and about a mile below that of her son-in-law, Robin de Longy, who married her daughter Caroline · The plantation was in St James Parish and between the Mississippi River and Lake Pontchartrain. McDermott, *Tixier's Travels*, pp. 10, 45, 53, (map, p. 48)

[3] Trudeau, *Autobiography*, pp 8-13; Malloch, "Trudeau," pp 102-103, McDermott, *Tixier's Travels*, pp 10-11, Ewan, "James Trudeau," p. 261.

Young Trudeau was a student not only of medicine, but also of ornithology. He was elected a member of the Academy of Natural Sciences in Philadelphia in November, 1835. When Trudeau joined the Academy, William Maclure was the president, S. G. Morton was the corresponding secretary, and many other distinguished physicians were active in the natural history movement.[6] Through this institution, Trudeau came into contact with one of the first active groups interested in the natural sciences in the United States. Other members with outstanding scientific reputations were Richard Harlan, John D. Goodman, Charles Pickering, and Joseph Leidy. Certainly these practitioners with special natural history interests would welcome a kindred spirit like young Trudeau.[7]

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[4] Howard A. Kelly, *A Cyclopedia of American Medical Biography*, 2 vols. (Philadelphia: W B. Saunders, 1912), 2. 241-242. Joseph Pancoast (1805-1882) taught classes in practical anatomy and surgery. He was appointed physician to the Philadelphia Hospital, Blockley, and head physician to the Children's Hospital connected with it In 1838 he was appointed Professor of Surgery at Jefferson Medical College and in 1847, Professor of Anatomy at the School He is remembered for his *Treatise on Operative Surgery*, 1844.

[5] Malloch, "Trudeau," p. 103 "At the end of a Catalogue of the Medical Graduates of the University of Pennsylvania; with an Historical Sketch of the Origin, Progress and Present State of the Medical Department, Philadelphia, 1836, is an additional catalogue of a few pages, dated, 'May, 1837.' This lists, 'Trudeau, James, Louisiana as having received the degree of Doctor of Medicine at the commencement in March, 1837.' The subject of his essay was apoplexy." Professor A Hammond copied the file on Trudeau from the Archives, University of Pennsylvania Medical College Records. This file states that Trudeau entered the University of Pennsylvania, October, 1835 (Medical Department) and was graduated M.D (March 31, 1837). George Corner, *Two Centuries of Medicine A History of the School of Medicine, University of Pennsylvania*, (Philadelphia: J B Lippincott, 1965), pp 86-110

[6] List of members and correspondents of the Academy of Natural Sciences of Philadelphia From the Origin of the Society on the 25th of January, 1812 to the 1st of September, 1841. 'James Trudeau, M.D. 1935 ' (Philadelphia: T. K and D. G Collins, 1841), p. 8. Max Meisel, *A Bibliography of American Natural History. The Pioneer Century, 1769-1865* (New York: Hafner Publishing Company, 1967), vol. 2, pp 130-218 For parallel developments in natural history, see George E. Gifford, Jr., "Charleston physician-naturalists," *Bull. Hist Med* , 1975, *49* 556-574, William M. Smallwood, *Natural History and the American Mind*, (New York AMS Press, 1967), pp. 121-143, 155-165, 280; and *From Seed to Flower, Philadelphia 1681-1876*, (Pennsylvania Horticulture Society, 1976).

[7] George H. Daniels, *American Science in the Age of Jackson* (New York Columbia University Press, 1968), pp. 19-20, 22-23, 29, 35, 38-39, 238 For a history of the Academy of Natural Sciences of Philadelphia, see Meisel, *Bibliography*, pp. 130-218, Smallwood, *Natural History*, pp 130-135; Morris Albert Linton, *The Academy of Natural Sciences of Philadelphia 150 Years of Distinguished Service* (New York. Newcomen Society in North America, 1962); William S. W Ruschenberger, *A Notice of the Origin, Progress and Present Conditions of the Academy of Natural Sciences of Philadelphia*, 1860, *From Seed to Flower*, p. 81. For parallels in the development of natural history in Charleston, Boston, and Philadelphia, see Gifford, "Charleston physician-naturalists,", George E. Gifford, Jr , "Medicine and natural history crosscurrents in Philadelphia," *Trans Studies College of Physicians of Philadelphia*, 1978, *45* 139-149

In 1837, the Academy described its ornithological activities and made mention of Trudeau.

> Perhaps no one of the Natural Sciences had been more assiduously cultivated by the members of the Academy than *Ornithology*. This observation is established by references to the splendid works which have successively appeared from Alexander Wilson, George Ord, Charles Lucien Bonaparte, and J. J. Audubon. These gentlemen have widely diffused the taste for this elegant study, and have, in truth, left comparatively little to be accomplished by future inquirers. The collection of birds in the Academy already exceeds 1000 species of which about 500 are displayed in cases. . . . Much also is owing to the liberality of Mr. Audubon, Dr. McEven, Dr. Merrin, Dr. Huffnagle, Dr. J. W. Russell, Dr. McMurtie, D. Harlan, Mr. J. K. Townsend, Dr. Ruschenberger, Dr. J. C. Jenkins; Dr. Trudeau, and the late Mr. S. W. Warder, but in this department, the society is under particular obligations to Dr. McEven, by whose personal exertions the collection has mainly attained its present extent; and admirable preservation, in the short period of eight years.[8]

John James Audubon had returned to America from England in September, 1836. He was anxious to draw the new birds in the Academy of Natural Sciences that had been collected by Thomas Nutall and John Kirk Townsend. Audubon's friend, Edward Harris, had arranged for Audubon to have access to the Academy. Audubon purchased ninety-three bird skins from Nutall and Townsend and regarded this sale as proof that in Philadelphia—which had previously been uncooperative—he was at last regarded as "a-a-a great naturalist."[9]

James de Berty Trudeau met Audubon in Philadelphia in the fall of 1836. Audubon's *Journal* for October 15, 1836 records, "After breakfast went with John [Audubon] to Mr. Trudeau who *lent* me a new tern and many scarce eggs, came to see my bird skins; and accompanied me the remainder of the day; having dined with us, and visited the water works with John in the Doc's chaise." Two days later Audubon wrote "John [Audubon] was drawing eggs this day and did draw 21 at young Trudeau's house."[10] Audubon wrote to his old friend, John Bachman, on October 23, 1836, "John went to the Sea Shore of New Jersey with our young friend Mr. Trudeau of Louisiana on Thursday morning last; and I expect them to return here tomorrow night."[11]

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[8] *Notice of the Academy of Natural Sciences*, 4th ed. (Philadelphia, 1837), pp. 17-18

[9] Alice Ford, *Audubon* (Norman· University of Oklahoma Press, 1964), p. 340.

[10] J. J. Audubon, *Journal*, at the American Philosophical Library. Ford, *Audubon*, p 341 "John (Audubon) was hunting with a former Louisianan, Dr James Trudeau, and drawing eggs in Philadelphia, true to a promise to Lucy to remain near Audubon "

[11] Howard Corning, ed., *Letters of John James Audubon, 1826-1840*, 2 vols. (Boston. Club of Odd Volumes, 1930), 2. 135

The Audubon-Trudeau friendship, no doubt facilitated by their common French heritage, was memorialized by the naming of two birds; James de Berty Trudeau named Audubon's woodpecker, (*Picus Auduboni*) for John James Audubon, and, in turn, Audubon named Trudeau's tern (*Sterna Trudeaui*) for J. de B. Trudeau. Trudeau read his paper, "Description of a New Species of Woodpecker" on June 27, 1837 at the Academy of Natural Sciences and the paper was later published in the Academy's *Journal.*[12]

Audubon described Trudeau's tern (*Sterna Trudeaui*) in his *Birds of America* (1838),[13] and gave a description of it in the *Ornithological Biography:*[14]

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[12] James Trudeau, "Description of a new species of woodpecker," *J. Acad. Nat. Sci.*, 1837, *7:* 404-406. After a brief anatomical description, Trudeau wrote, "This species resembles the Hairy and Downy woodpecker in plumage, but is very distinct, and is intermediate in size between them. It seems to form a passage from the Hairy to Downy woodpecker. Hunting in a wood 15 miles from New Orleans, on the 26th of last April, my attention was attracted by a very extraordinary note, and after some difficulty I succeeded in getting possession of the bird from which it proceeded. It was very wild, running on the trunks and limbs of trees with the agility peculiar to the family, always contriving to keep on the side of the trunk most distant from its pursuer. It was the species now described. I have frequently examined the spot in hopes of getting more; and although I have often heard its note, the bird has, in the very thick woods, eluded my pursuit. The sportsmen with whom I have spoken of it, suppose it to be a common species. It is probable that this curious bird, respecting which I have learned nothing farther, has escaped the observation of naturalists on account of its resemblance to the two species already named." See Jeanette E. Graustein, *Thomas Nutall, Naturalist* (Cambridge: Harvard University Press, 1967), p. 330. "Near Cambridge, [Massachusetts], Nutall found a strange woodpecker in full adult plumage. By coincidence this form had been found in April in woods near New Orleans by Dr. James Trudeau who read a description of it on June 27, to the Academy of Natural Sciences; Trudeau named it for Audubon. Nutall's specimen was a wanderer, for it is now classed as a southern variety of the eastern hairy woodpecker (*Dendrocapus villosus Auduboni*)." Audubon figured the woodpecker on plate 417 (1838), figure 10, *Birds of America*, 4 vols. (London, 1827-1838). A description of the bird was given in John James Audubon, *Ornithological Biography*, 5 vols., (Edinburgh: Adam Black, 1831-39), 5: 194.

[13] Audubon, *Birds of America* (1838), plate 409, figure 2. The Trudeau tern was also figured in his later octavo edition. John James Audubon, *Birds of America, from Drawings made in the United States and Their Territories* (New York: J. J. Audubon, 1844), 7: 105-106. In vol. 2 (1841) of that edition, p. 203, under a list of subscribers from New Orleans is given, "R. Trudeau." Certainly this was James Trudeau's father, René Trudeau. On page 204 of volume 7 (1844), under New York City subscribers is listed, "James Trudeau, M.D." For a readily available picture of Trudeau's tern see William Vogt, *The Birds of America by John James Audubon* (New York: Macmillan, 1962), p. 409. See also *The Original Water-Color Paintings by John James Audubon for The Birds of America*, 2 vols. (New York: American Heritage Publishing, 1966), 1: 97; 2: 309 and Edward H. Dwight, *Audubon Watercolors and Drawings* (New York: Munson-Williams-Proctor Institute and The Pierpont Morgan Library, 1965), p. 30.

[14] *Ornithological Biography*, 5, plate 309, p. 125. *The Original Water-Color Paintings*, plate 97. Trudeau's tern presents an intriguing historical problem. As we know, Trudeau "lent" Audubon "a new tern," and Trudeau and John Woodhouse Audubon did visit the "New Jersey Sea Shore." Now, whether the tern really visited the New Jersey shore is another question! It is a bird of fresh water marshes of South America, which is not known to wander widely, and it has never even been seen in northern South America. It is not a bird that one would expect to find so far from home, and no one has seen it in New Jersey since, despite many thousands of visits by bird watchers to the same New Jersey shore. No one

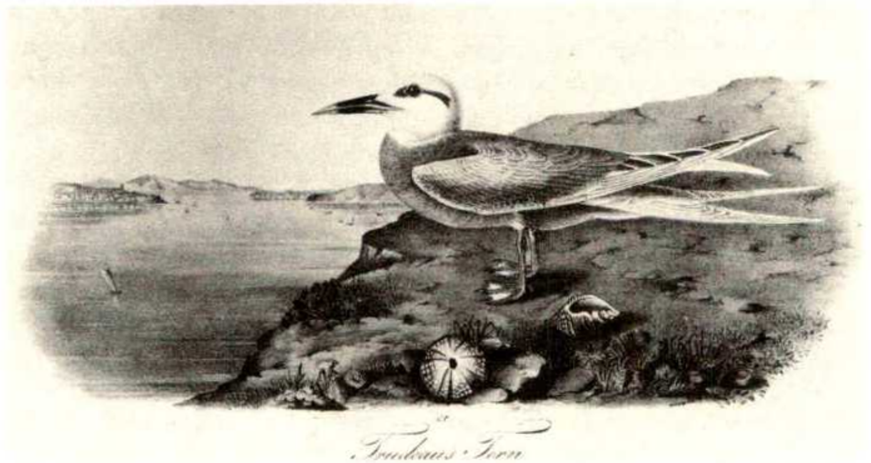

Figure 1. Trudeau's tern

> This beautiful tern which has not hitherto been described was procured at Great Egg Harbor in New Jersey by my much esteemed and talented friend, J. Trudeau, Esq. of Louisiana to whom I have great pleasure in dedicating it. Nothing is known as to its range or even the particular habits in which it may differ from other species. The individual obtained was in the company of a few others of the same kind. I have received from Mr. Trudeau the intimation of the occurrence of several other individuals on Long Island.

Trudeau today is primarily remembered by this ornithological eponym.[15]

After graduation from the University of Pennsylvania Medical School, Trudeau spent the summer in Philadelphia involved in ornithological pursuits.[16] He went to Paris the next year with the flock of other young

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believes that the bird Audubon figured came from New Jersey. Several explanations as to how and where Trudeau obtained the specimen have been offered, the most likely being that Trudeau's tern was confused with the New Jersey specimen. According to Michael Gochfeld, M.D., of the Columbia School of Public Health, the most likely explanation for the bird's location at "Egg Harbor" is mislabeling. Margaret R. Wright, Professor of Biology and Curator of the Natural History Museum, Vassar College, informed me that the type specimen *Sterna Trudeaui* (Audubon) "Collected at Great Egg Harbor" was given to Vassar College in a collection of 800 birds by Jacob P. Giraud, a Poughkeepsie resident and ornithologist. The specimen is in storage at the American Museum of Natural History.

[15] See for example Ernest A. Choate, *Dictionary of American Bird Names* (Boston: Gambit, 1973); T. S. Palmer, Short Note in *Condor, 30:* 300, (Middle name incorrectly given as "de Bertz."); Mary Ferguson Coble, *Introduction to Ornithological Nomenclature* (Los Angeles: American Book Institute, 1954), p. 18; Edward S. Gruson, *Words for Birds* (New York: Quadrangle Books, 1972), pp. 126-127.

[16] Corning, *Letters of Audubon*. In a letter to Mrs. Bachman, July 2nd, 1837, 2: 164, "Harris and Trudeau are going down to Salem on Tuesday to shoot black rails and new York rails &c for me." In a letter to Reverend John Bachman, Audubon, October 31st, 1837, 2: 188, "At present the number of

American physicians to undertake postgraduate study and like some, maintained an avid interest in natural history. He was visited by John Bachman[17] on October 7, 1838, Audubon's collaborator on the *Viviparous Quadrupeds of North America* and later by Edward Harris[18] who "commissioned" Trudeau to purchase books and bird specimens for Audubon. While in Paris, Audubon offered Trudeau the use of his drawings of birds' eggs which Trudeau gratefully accepted.[19]

During his stay in Paris, Trudeau wrote to Dr. Samuel George Morton[20] corresponding secretary of the Academy of Natural Sciences of Philadelphia.

Paris 22 April 1839

My Dear Sir,

I inclose [sic] in this letter a Drawing and the description of a new bird to be published in the transactions of the Academy. The tanagers are remarkably well

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positively good species in my Work, and Drawings, amount to 459, and it is probably that it will ultimately be 470! Docr. Trudeau of Phila. writes me that he has received more specimens of *Picus Auduboni* from Louisiana."

[17] Claude Henry Nauffer, ed., *Christopher Happoldt Journal* (Charleston, S.C : Charleston Museum, 1960), pp. 194, fn. 89. See also Joseph Ewan, "John Bachman and the Happoldt Journal," *Rhodora*, 1962, *64*. 92-94.

[18] Francis Hobart Herrick, *Audubon the Naturalist*, 2 vols. (New York: A. Appleton-Century, 1838), 2: 184-187. "John Bachman wrote to me that he had left in commission to Trudeau to repurchase for me a copy of Vieillot's *Oiseaux de l'Amérique Septentrionale*, and also a copy of Boie or Boje work on birds generally, But I have received neither books or promises of them from Trudeau as yet, perhaps you would undertake the task yourself, and show to Havell as soon as possible, for I shall be sadly in want of them in a few weeks more " . . . "I cannot account why Trudeau has not written to me in answer to my last, now full two months old?". . . . "I wish you would ask Trudeau whether he recollects the specimen of an Eagle sent by Townsend in his first collection, numbering 54 and which the latter has lost, though he considered it as a new species It was procured in California. Townsend speaks sorrowfully of the loss of this specimen. It never came under my eye, did it come under yours? Ask Trudeau whether he ever saw my *Hirundo Serripennis* in America. Bachman wrote to me that Trudeau thought he had in the skins of Frederick Ward. I think Trudeau will be pleased with the anatomy of our birds, as it opens mysteries hitherto unknown in connection with the relative affinities of some species toward others and assists in the formation of groups &c., in what some day or other, will be called a Natural arrangement! I wish I could have spent a few weeks in Paris with you and Trudeau, as I readily imagine that some new species of North American birds, may yet be found there unknown to the World of Science."

[19] Waldemar H. Fries pointed out the following letters from John James Audubon to Edward Harris from the James Harris Collection at the Houghton Library, Harvard University. February 6, 1838, "Remember me kindly to Trudeau and assure him that if my own drawings of bird eggs can prove the least assistance to him they are presently at his service," and July 7, 1839, "I sent all my drawings of birds eggs to Trudeau who has acknowledged the receipt of them and speaks of forwarding them back to me as soon as possible, but as we will be off before this can take place, I wish you would take charge of them *when he has done with them* "

[20] See Dumas Malone, *Dictionary of American Biography* (New York· Charles Scribner, 1943), pp. 265-266, and "Samuel George Morton (1799-1851)," *Nature Magazine*, May 12, 1951, 754-755

known, and a new species of this genus will be considered by all the ornithologists as a valuable prize. So that I think it highly important that the figure and description should be immediately published to secure the species—the original drawing is to be given to Mr. Edw. Harris after the publication.

I noticed this bird for the first time in the collection of the Academy in 1836. As it was unknown to me I searched in all the Books belonging to the Society but could not find its description. I then took a correct sketch and a description to enable me to ascertain whether it had been described in some works missing in the Library of the Academy. In a museum of Havre de Grace, I again saw the bird some years after and purchased [it]. Several distinguished ornithologists and among them Princes Bonaparte and Massina have seen this bird in my collection and acknowledged that it had never been described.

I have noticed also in the collection of the Academy, a new bird of prey. I think the ornithological community [sic] would do well to figure and publish the bird. It comes from Mexico and has been exchanged with Mr. Taylor by Dr. M'Even and myself. As ________ forwards the birds to me, I should ascertain ________ what it is and if new, as I suppose, figure it and send it back.

I am now collecting birds of Europe—for the Society—the collection is almost complete and very valuable. I shall present it to the Academy provided we shall have room enough and sufficient number of cases.

Yours sincerely,
Trudeau[21]

Morton read Trudeau's "Description of the White-Winged Tanager (*Pyranga leucoptera*)" on June 4, 1839 because Trudeau was still in Paris. Later the note was published.[22] Trudeau's "new" species was the female western tanager and it is curious that he published it since he had already sent a specimen to Audubon who had identified it correctly.[23]

While in Paris in 1838, James Trudeau met a fellow student of medicine, Victor Tixier. Tixier (1815-1885) had been born in Clermont-Ferrand and during his medical studies in Paris, associated with painters, one of whom, Thomas Couture, painted his portrait. Tixier was twenty-three when he met Trudeau and a close friendship developed. As an intern in surgery, while dissecting, Tixier pricked his finger and since the wound did not heal, he went to his mother's home at St. Pont to recover. But his recovery was characterized by repeated fevers which prevented his medical education. For diversion and his health, he accepted the invitation of his friend, James Trudeau to return with him to America. They sailed from Le Havre on November 23, 1839 and Tixier remained nearly a year in America.[24]

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[21] The letter from J Trudeau to Samuel George Morton, M.D , Corresponding Secretary of the Academy of Natural Sciences of Philadelphia of April 22, 1838 was brought to my attention by a Xerox note of the late Francis Harper, who shared his notes with Professor Joseph Ewan, who shared them with me. The letter is in the American Philosophical Society Library

[22] J. Trudeau, "Description of the White Winged Tanager (*Pyranga leucoptera*)," *J Acad. Nat. Sci.*, 1838, *3*. 160.

[23] Audubon, *Ornithological Biography*, 1838, 4 385 Under Louisiana tanager (Western tanager), Audubon wrote. "Wilson was the first ornithologist who figured this handsome bird. From his time until the return of Dr. Townsend from the Columbia River no specimen seems to have been procured. That gentleman forwarded several males in much finer condition that those brought by Lewis and Clark. Some of them I purchased and on his return to Philadelphia I was presented with a female by my young friend Dr. Trudeau of Louisiana, a representation of which you will find on plate 400, figure 4. The only account of this species is by Thomas Nutall who however was unacquainted with the female."

Tixier's *Journal* of his American trip from November 23, 1839 to October 24, 1840 has been published. It contains an account of his sea voyage to New Orleans, where he was entertained by Trudeau's relatives at the sugar plantation with woodcock hunts and torchlight alligator hunts. It gives a vivid picture of that antebellum era and a place that is now ruins and memories.[25]

Victor Tixier's account of his travels contains several most interesting medical references. At the plantation of Robin de Logny near New Orleans, he described two large rooms which constituted the infirmary and were attached to a terrace where the patients could take the air. Although there were no patients there during Tixier's visit, he was impressed with the cleanliness of the infirmary and with the carefully chosen medicines in the small pharmacy. He explained:

> The inhabitants are all more or less doctors, and are helped besides by old mulatto women, who claim that they are very skillful. The physicians of Louisiana are well-aware of what these wretched women can do for they come and oppose their experiences to that of the practitioner, and obtain better obedience than he. They use unknown drugs, extraordinary formulas which capture the confidence of the Negroes, often that of the whites themselves, and have the doctor blamed for the blunders of the women.[26]

At the plantation of Pierre Sauve, Tixier met some Choctaw Indians and reported on their medical practices. He was surprised at their knowledge and use of many medicinal plants. He observed that the Redskins of the South possessed more medicinal knowledge than those of the West or the North and wondered if the abundance of wholesome herbs in the South might be the reason. Specifically, he noted:

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[24] McDermott, *Tixier's Travels*, pp 5-8.

[25] Lillian G. Bourgeors, *Cababocey. The History, Customs and Folklore of St. James Parish* (New Orleans: Pelican Publishing, 1957), pp. 27, 36, 37; Frances Parkinson Keyes, *All This is Louisiana* (New York: Harper Brothers, 1950), p. 177 (picture of the Xenon Trudeau House), Clarence John Laughlin, *Ghosts Along the Mississippi* (New York: Charles Scribner, 1948), plate 23 shows the "Xenon Trudeau House."

[26] McDermott, *Tixier's Travels*, p 50.

> A great many of these Indians are vaccinated; they know how to bleed and to purge, they give emetics and sudorifics quite suitably. They seem to know very well how to treat syphilis. A Negro whose nose had been destroyed by a venereal ulcer that no one had been able to cure had become an object of repulsion even to his companions of slavery. Exempted from work, he had been relegated to a hut built by him at the edge of the wood. The Choctau undertook to cure him and succeeded in obtaining a complete healing of the ulcer.[27]

Tixier reported that the Indians used l'herbe-à-sonnettes and the root of the sycamore tree, crushed while fresh, to treat venomous snake bites. They applied the pulp on the wound and had the patient drink the juice that resulted from bruising the roots.

Tixier did not only observe. He had a chance to demonstrate his medical skill when a slave belonging to M. Sauve was seriously injured while driving a horse at the capstan. The bar broke near the pole and struck the head of the Negro, knocking him down.

> I was called immediately and found in his head three or four wounds, beneath which I saw that the cheek bone and the skull were broken. In that season there was a danger of tetanus besides the seriousness involved in such a complicated wound. I followed the mode of treatment which I had so often seen applied by my good and scholarly master, Professor Sanson,[28] and succeeded beyond all my hopes, for I avoided the probable danger to the brain and saved the patient's eye, which at the moment of the accident could be seen through a wound of the eyelid.[29]

Both of these cases impressed Tixier greatly and he soon learned that in America, illnesses have an open, rapid course and end swiftly, either with recovery or death. He wrote:

> It is, therefore, very important for the doctors not to make a mistake in diagnosis; they must act quickly and energetically, for it happens frequently that one day after the beginning of an illness is too late to fight if the doctor has not recognized it, or if he has neglected it at the start. Bleeding is very beneficial, but in a climate as hard on the system as this one it would be dangerous to overdo it.[30]

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[27] *Ibid.*, pp. 58-59.

[28] *Ibid*, p. 63. McDermott notes, "Probably Louis Joseph Sanson (born Paris, January 24, 1790 and died Paris, April 1, 1841) He taught, wrote extensively, and was celebrated as a surgeon."

[29] *Ibid*, pp 63-64

[30] *Ibid*, p. 63

In May 1840, James Trudeau, Victor Tixier, Alexander Guerin, and Fourneau left New Orleans on the Steamboat General Pratte planning a trip to St. Louis, Chicago, the Great Lakes and Niagara Falls. However, on board they met Major Paul L. Chouteau, an Indian agent, who spoke so eloquently of the Osage Indians and who offered to introduce them to the Indian chiefs, that the travellers decided to change their plans and spend their time with the Osage on their summer hunt. Trudeau's welcome among the Osage was assured since his grandfather, Xenon, had once saved the life of an Osage chief. They left for the Osage country, which covers the area that today includes the states of Missouri, Kansas, and Oklahoma, on May 5 and did not return to St. Louis until August, 1840. Tixier's *Journal* provides a valuable record of their travels.[31] James Trudeau is mentioned in the *Journal:*[32] the Osage called him "The Tall Frenchman," Ishta-jêhgranlêh. During the summer hunt of 1840, Trudeau shot a buffalo with a pistol and rode out with the Osage war party.

During their time with the Osage Indians, Tixier and Trudeau also used their medical knowledge when, during a hunt, Majakita, an Indian chief, fell from his horse and broke his right collarbone. Tixier wrote:

> My colleague, Trudeau, and I had the honor to be sent for by his Osage highness and to apply a dressing made of bands of colors. But the unruly patient could not force himself to bear this dressing, so I had to give up the idea of making him do so. I warned him of the accidents which might result, that movement might cause a faulty setting of the bones, but no argument could make him let himself be treated methodically.[33]

Shortly thereafter, Tixier faced another instance of this resistance to any sort of dressing. A young child had broken the lower part of his radius and his mother refused to leave the dressing in place. The child healed but with a misshapen limb. Tixier noted, "The redskins do not react in this manner for fear of the physical pain, for they submit to very painful operations without winking an eye, but these children of nature are afraid of a prolonged constraint."[34]

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[31] *Ibid.*, p. 405. "Few travelers in the Mississippi Valley a century ago left as detailed and valuable an account of Western adventures as that of Victor Tixier. . . In all of these accounts—whether military, topographical, mercantile, scientific, or merely curious—the Osage play a considerable part, but in none does the face of the country or the customs and manners of that tribe enjoy such an important place as in Victor Tixier's *Voyage aux Prairies Osages*, which records the experiences of several months spent with the Osage in their villages and on their summer hunt in 1840. . . Above all, he presents an account of the life of this tribe not to be equalled by any other of the many travel-writers of the Southwest. Eventually Spanish official records, United States military and Indian Office papers, and missionary letters and journals, added to other documents and printed sources, will make possible excellent and thorough histories of the Southwest and of the Osage. Tixier's account of the tribe in 1840, however must remain one of the most important sources for the historian to draw upon " Mention is also made in John J Mathews, *The Osages Children of the Middle Waters* (Norman: University of Oklahoma Press, 1961), pp 450, 596-660 Specific reference to Trudeau, p 596.

[32] McDermott, *Tixier's Travels*, pp. 74, 75, 86ff, 107, 143, 179, 217, 246, 264, 279.

[33] *Ibid.*, pp 246-247. Included in this section is a detailed description of the treatment of snake bite using the Sanson method.

Tixier described the Osage and their diseases in his *Journal* noting that the redskins are most frequently plagued by affections of the eyes; films on the cornea and blindness were very common. Endless intermittent fevers and rheumatism came next, he reported, and then inflammations of the various respiratory organs. He wrote: "I saw a few afflicted with typhoid fever and two or three scrofulous patients. Syphilis is a common disease and can be cured easily with sudorifics. I have never seen any of the consecutive symptoms. It is said they are never seen among the savages. None of the diseases which strike the civilized man spares the redskins. The illnesses of the Osage are simple, like their way of living, but often serious."[35]

Tixier's *Journal* comes to a sudden conclusion. After returning to St. Louis with Trudeau, he took passage on a steamboat for Pittsburgh, went over the mountains to New York, and then returned to France. From St. Louis, James Trudeau went home to New Orleans.

Trudeau had not forgotten his ornithological interests while on the Osage trip. He painted birds' eggs and made some field notes on the burrowing owl.[36]

Shortly after his trip to the Osage, Trudeau went to New York and was soon contacted by Audubon. Audubon wrote to his son, John Woodhouse, Trudeau's colleague of Philadelphia days. "Trudeau who is now at New York has discovered a new hawk (Buteo) in Louisiana [sic.] I hope to have (both) it for our little work. (*Birds of America*, Octavo Edition). Trudeau is at New York where he intends spending the winter and I hope to see much of him."[37] John Woodhouse Audubon resumed his relationship with Trudeau, who sat for the young Audubon. The

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[34] *Ibid.*

[35] *Ibid*, p. 146

[36] Ewan, "James Trudeau," pp. 259-261 "Besides these materials of Labrador origin and surely dating from Audubon's trip of 1833, there is a group of egg paintings without doubt originating with Trudeau One is labelled "Common Buzzard, Grand Saline, May, 1840," accompanied by two paragraphs of notes in thin delicate hand." The notes were done on June 20 and June 27, 1840. The bird he described was the Swainson's Hawk.

[37] Letter from John James Audubon to John Woodhouse Audubon, September 20, 1840, Princeton University Library.

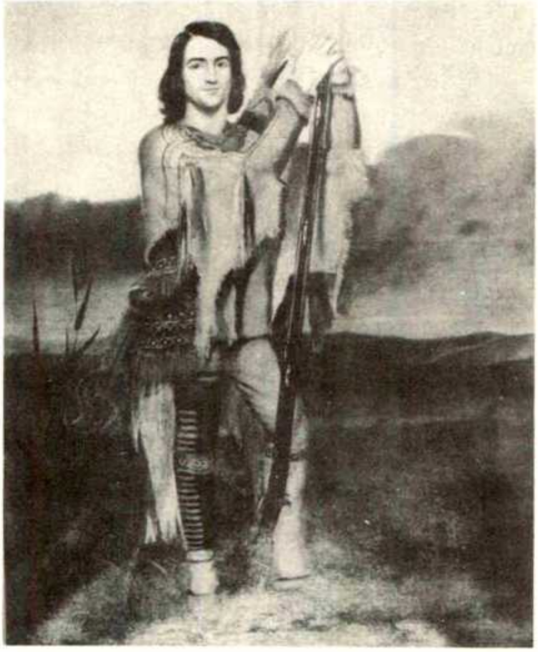

Figure 2. James Trudeau in Indian Garb

painting, unsigned and undated, is now entitled, "Young Dr. Trudeau in Indian Garb."[38] It shows Trudeau wearing the Indian costume that the Osage tribe had presented to him the previous summer in gratitude for his grandfather having saved the Osage Chief's life.

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[38] Ford, *Audubon*, pp. 377, 435. The painting must have been done in January and February 1841. Audubon wrote Victor Audubon, February 11, 1841 (Letter in American Philosophical Library). "John had begun to think of devoting himself to portraiture for a living, if and when he could be spared. He was taking full-length likenesses of three of the Trudeau family. . . . John. . . . had painted. . . . one picture of Trudeau in an Indian dress." The painting is now owned by James Trudeau's grandson, Francis B. Trudeau, Jr., Saranac Lake, New York, who gave permission to use the photograph of the painting kept at the Frick Art Reference Library. For more about the painting see *Edward Livingston Trudeau: A Symposium* (Livingston, N.Y.: The Livingston Press, 1935), pp. 37-38. "The squaws embroidered the grandson of James Trudeau a leather suit in which he was painted by John Audubon, son of the great naturalist. Dr. Trudeau was wheedled out of these Indian garments by Prince de Joinville, a great friend of Louis Gay-Lussac, son of the famous chemist and aeronaut and Trudeau's brother-in-law. His promise was that it would be deposited in some museum in France." Prince de Joinville (1815-1900), a French naval officer and writer on military subjects, journeyed to the United States in 1861 to volunteer his service to President Lincoln. Malloch, "Trudeau," p. 101 quotes Edward Livingston Trudeau's *Autobiography*, pp. 8-10, "After her death, [second Mrs. James Trudeau (neé Marie Bringier)] Miss Félicie Bringier, her sister, sent me a large oil painting of my father in Indian hunting costume, which she said was painted in the early Forties by J. J. Audubon. The distinguished naturalist was a great friend of my

From 1840 to 1843, nothing is known of Trudeau's activities. In 1843, he established his medical practice in New York and married Cephise Berger, daughter of Dr. Francois Eloi Berger, a New York physician.[39] Trudeau maintained his interest in ornithology and had a "splendid collection of birds' eggs and drawings of eggs."[40] In 1842 he corresponded with his old friend, Edward Harris, about ornithological matters and suggested that he had done some of the paintings for the octavo *Birds of America* which were engraved by Bowen. In 1844 he again wrote to Harris and offered to sell some European bird skins.[41]

Trudeau's interest became medical in a letter to Harris in 1846—he talks of medical experiments he had been carrying out on the carotid artery of sheep,[42] and of his intention to become a founder of the New York Academy of Medicine which was established in 1847.[43]

The profession of medicine in New York at that time was far from lucrative. There were too many physicians practicing in proportion to the population of the city.[44] Perhaps because of this, Trudeau broadened his

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father's, who accompanied him on many of his scientific expeditions, and went with him on the Fremont-expedition in the Rocky Mountains in 1841. Miss Bringier states in her letters to me that my father often helped Audubon with the anatomy of his ornithology work, and drew illustrations of birds and eggs for him." This account contains errors: the painting was done by John Woodhouse Audubon and Audubon did not go west with Fremont in 1841. He did go on the Missouri river trip of 1843, but without James Trudeau. The painting was exhibited in the National Academy of Design Exhibition, 1841 (198) as Portrait of Dr. Trudeans [sic] for Trudeau in his Indian Garb. Also at the Second Audubon Centennial Exhibition, Audubon as a Portrait Painter, May 28-July 15, 1951, National Audubon Society, New York, Catalogue (17). See also Herrick, *Audubon,* 2: 457.

[39] Malloch, "Trudeau," p. 105.

[40] John F. McDermott, *Up the Missouri with Audubon: The Journal of Edward Harris* (Norman: University of Oklahoma Press, 1951), pp. 9, 49, 105. On June 19, 1843, John G. Bell, member of Audubon's trip up the Missouri River, took the nest and eggs of a Lark Bunting. Edward Harris, also a member of the expedition, wrote in his Journal: "We hope they will be an acquisition for our friend, Dr. Trudeau." Isaac Sprague, the young artist on the trip, took Trudeau's gun, dropped it overboard, but returned it later. Spencer Fullerton Baird (1823-1887) was Professor of Natural History at Dickinson College in Feb. 1845 when he visited Trudeau, and made the quote. At age 23, Baird had collected 3,500 bird skins and in 1850 he would be the Assistant Director, and in 1878, the Secretary of the Smithsonian Institution. See William Healey Dall, *Spencer Fullerton Baird: A Biography* (Philadelphia: J. B. Lippincott, 1915), p. 121.

[41] Letter from J. Trudeau to E. Harris, New York, September 15, 1842, Harris Papers, Alabama Archives, Montgomery, Alabama.

[42] Letter from J. Trudeau to E. Harris, Jan. 17, 1846, Harris Papers, Alabama Archives, Montgomery, Alabama.

[43] Malloch, "Trudeau," p. 103. "Trudeau is on the 'List of Founders' of the New York Academy of Medicine; (1847), a manuscript written by Dr. S. S. Purple, a true benefactor of the Academy." See also Philip Van Ingen, *The New York Academy of Medicine: Its First Hundred Years* (New York: Columbia University Press, 1949), p. 429.

[44] John Duffy, *A History of Public Health in New York City 1625-1866* (New York: Russell Sage Foundation, 1968), p. 472.

interests to include more than medicine and ornithology.[45] He became a medical sculptor doing a series of plaster and bronzes of his colleagues,[46] some in caricature, dated from 1849 to 1858, including a self-portrait and those of Valentine Mott, Lewis Albert Sayre, Alban Goldsmith, John Wakefield Francis, Willard Parker, Eugene Ramsay Peugnot, Dr. Henry Feltus Quackenbos, Edward A. Dixon, Francois Berger, and J. B. Pigne.

James Trudeau's son, Edward Livingston Trudeau,[47] was born in 1848, but in 1851, his wife, with her parents and son, moved to France, where Mrs. Trudeau, for reasons unknown, obtained a divorce and married Captain F. E. Chuffart.[48] Edward Livingston Trudeau would later become renowned for his work at Lake Saranac Sanitorium as an advocate of fresh air treatment for tuberculosis patients.

Apparently James Trudeau gave up his New York practice in 1852, possibly as a result of the financial and marital problems mentioned above. On March 8, 1852 his entire professional library, and also a fine assortment of medical instruments, was sold at auction,[49] but Trudeau remained in New York until 1858 because the bust of Dixon is inscribed, "Mai, 1858." Sometime between May, 1858 and 1860, Trudeau returned to New Orleans and set up medical practice there. He contributed a paper, "On Granulations of the Lining Membrane of the Uterine Cavity" to the *New Orleans Medical and Surgical Journal.*[50] Most likely the son of the South had returned to the land of his sympathies.

While in New York, Trudeau had met Thomas Mayo Brewer, M.D., "America's first oölogist," friend of Audubon and Spencer Fullerton

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[45] Letter from James Trudeau to Samuel George Morton, March 2, 1847, The Historical Society of Pennsylvania:

> Allow me to introduce to you a young friend of mine Mr William H. Edward of our City, an enthusiastic lover of natural history and especially of ornithology. Mr. Edwards has just returned from a scientific excursion to South America and has brought home with him many valuable birds. He is now going to your city to visit the Academy of Natural Sciences & compare specimens with your collection. I would feel much indebted to you to take him to the Academy in order to enable him to accomplish his researches Mr. Edwards has taken with him some skulls he intends to present the Academy or rather to your own museum. Any kindness shown to him will be highly acceptable and gratefully acknowledged

[46] Malloch, "Trudeau," pp 101-113 Miss Mary Hall Sayre, daughter of Lewis Albert Sayre (1820-1900), the orthopedic surgeon and one of the founders of the New York Academy of Medicine, gave eight plaster busts, 7-14 inches in height, most in caricature, and 4-5 bas reliefs in bronze about seven inches in diameter. All are New York doctors who practiced in the 1850s. All but two are signed "Trudeau "

[47] Trudeau, *Autobiography,* p. 8

[48] *Ibid.,* pp. 8-9

[49] In the New York Academy of Medicine, there is a catalogue, *The Entire Professional Library of Dr James Trudeau—also a Fine Assortment of Medical Instruments &c.*

[50] *New Orleans Med. Surg J* , 1860, *17.* 51-55. See also John Duffy, ed , *The Rudolph Matas History of Medicine in Louisiana,* 2 vols (New Orleans: Louisiana State University Press, 1962), 2: 269.

Baird. In 1857 Brewer published Part I of his *North American Oology.* Brewer (1814-1880), a Bostonian, was graduated from Harvard College in 1835 and the Harvard Medical School in 1838. Like Trudeau, Brewer had continued his study of ornithology while a medical student, and was particularly interested in oology. Audubon corresponded with Brewer from 1836 to 1844 and encouraged him to collect colored drawings of the eggs of rare species of birds. Audubon probably encouraged the Trudeau-Brewer relationship, and may have initiated their acquaintance. The result of this friendship is indicated by Brewer's statement in the preface of *North American Oölogy:*

> To Dr. James Trudeau, hardly less than to Mr. Audubon, acknowledgements must be made for valuable co-operation and assistance. Many years since, almost coincident with his earliest investigations, the design was entertained of a joint work illustrative of American Oölogy. It has been abandoned in consequence of the continued absence of Dr. Trudeau from the country, the want of knowledge of his present address, and above all, the fact that no use could be made of the materials jointly collected for the illustrations. To Dr. Trudeau the writer is indebted for a large number of valuable and rare specimens, and for a much larger number of drawings, which are often referred to in the text, but which cannot be made use of in illustrating the present work.[51]

That Brewer was the final receiver and publisher of Trudeau's egg drawings is clear.

In his first Prospectus of the *Birds of America,* Audubon wrote, "The eggs of most of the species will appear in the course of publication"[52] and as late as 1837 Audubon wrote to Titian R. Peale, "My work is going on as usual, well I hope, and my engravers assure me that the last plate will be delivered about the middle of March next. My last volume will consist of 115 plates comprising 146 species and 5 plates of eggs, quite an omelette."[53] As has been pointed out, Audubon offered Trudeau the use of his drawings of birds' eggs when Trudeau was in Paris in 1838 and Trudeau accepted the offer. At this time Audubon was drawing the Townsend-Nutall birds from the west and the number of plates of birds in the last volume increased to 135, and perhaps excluding the egg plates that had been planned. Then in 1842, Trudeau wrote to Harris, "I have written to Brewer but not sent the letter as I don't know where he is." Clearly, the Trudeau collection came to Brewer, for in the Museum of Comparative Zoology at Harvard University, there is a two-volume set of colored egg paintings listed under *American Oology* by Trudeau and Brewer.[54] However, not all of Trudeau's egg drawings went to Brewer. In 1962, Mr. Clive Hardy, Archivist and Historical Consultant to the Louisiana State Museum, brought to light an overlooked parcel of 80 watercolor drawings of birds' eggs that have been attributed to James Trudeau.[55]

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[51] George E. Gifford, Jr , "Thomas Mayo Brewer, M.D : A blackbird and duck, sparrow and mole," *Harvard Medical Alumni Bulletin,* 1962, *37.* 32-35. Ewan, "James Trudeau," p. 263. Thomas Mayo Brewer, *North American Oology* (Washington, D.C.. Smithsonian Contributions to Knowledge, 1857, 1859), Part I, pp 6, 10, 11, 25, 32, 34, 39, 42, 43, 45, 52, 63, 71, 73, 79

[52] Waldemar H Fries, *The Double Elephant Folio · The Story of Audubon's Birds of America* (Chicago. American Library Association, 1973), pp 95-96, 386.

[53] Transcript of a letter from J J Audubon to Titian R. Peale, September 19th, 1837, Houghton Library, Harvard University.

In 1860, James Trudeau was commissioned Brigadier General of Artillery in the Confederate Army. New Orleans was certainly open to attack and Trudeau concentrated his efforts on defending his childhood home. He wrote a treatise, *Considérations sur la défense de ses milices, Nouvelle-Orléans, 1861*,[56] and he arranged the defenses of island No. 10. Wounded at Shiloh, he fought again at Madrid Bend, and was taken prisoner in 1863. Trudeau was paroled to remain on the Houmas Plantation in Ascension Parish belonging to M. S. Bringier, whose daughter, Louise, he married that year.[57] The Bringier family owned the princely "White Hall" plantation (La Maison Blanche) and it was there that Trudeau settled for his final years.[58] From 1882 to 1884 Trudeau was chief editor of the *Medical Review according to the Dosimetric Method of Dr. Ad. Burggraeve,* published in New Orleans.[59]

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[54] *American Oology* [by] Trudeau and Brewer [N.p.N.d.] This is a two volume album of colored drawings of birds' eggs, some of which are pasted into the album. The call no is XR-T at the Museum of Comparative Zoology at Harvard. One cut-out is labelled "Phaeton H. D. Stephens del " This is not the same as "Brewer, T M *Oology of North America* Original drawings by W S. Morgan for T. M Brewer Houghton Storage × 6867." In a letter to me October 6, 1962, Professor Joseph Ewan speculated on the Trudeau albums. "There must be a notebook that accompanied the collection to be found somewhere Evidently it is not at MCZ (Museum of Comparative Zoology, Harvard). Just possibly, since the Brewer work on oölogy was published through the Smithsonian, the notes may have lodged at Washington, where of course they may have been a casualty in the fire of 1867."

[55] Ewan, "James Trudeau," pp 259-263. It is interesting to note that among the Louisiana drawings, some were done by "L. Marchisio 1839" and some by "H. L. Stephens" as in the Harvard "Trudeau and Brewer" volume at the Museum of Comparative Zoology. Most likely the Louisiana drawings are the reliquae of Trudeau's original works The cut-out drawings of birds' eggs are probably those that are pasted in the Trudeau-Brewer Album at the MCZ Dwight, *Audubon Watercolors*, pp. 30, 41, 48, Plate 45, Plate 87.

[56] There is a copy of the 82-page booklet at the Howard Tilton Memorial Library See Edward Laracque Tinker, *Les Ecrits de Langue Français* (Paris. 1932), p 475.

[57] For Trudeau's war activities, see: *War of the Rebellion, A Compilation of the Official Record*, Series I, vol 7, letters from Leonidas Polk praising Trudeau and vol 52 of the same series, letters from Trudeau to Polk There are three letters from James Trudeau preserved in the Dreer Collection of Confederate General material at the Historical Society of Pennsylvania in Philadelphia: one dated July 8, 1861 to Pierre Soule and two letters to Brigadier-General D. W. Ruggles, December 25, 1861 and August 23, 1862. Trudeau, *Autobiography*, p 40, Malloch, "Trudeau," p. 104.

[58] Herman De Bachelle Seebold, *Old Louisiana Plantation Homes and Family Trees* (New Orleans. Pelican Press, 1941), p. 84.

James de Berty Trudeau died in New Orleans on May 25, 1887, "one of the most learned, accomplished and many sided men that Louisiana ever produced."[60] Although biographical information about James de Berty Trudeau is fragmentary, his multi-faceted life reveals the social forces in both medicine and natural history that prevailed in the 19th century.

Acknowledgments

This paper has evolved over the years. It was given as a part of the annual T. Cook Smith Lecture to the Innominate Club, Louisville, Kentucky, May 13, 1975; to the Friday Evening Club, Providence, Rhode Island, November 21, 1975; and at Columbia University Medical School, October 20, 1976. Many have helped with details and information and to them I express my gratitude: Edward H. Dwight: Joseph Ewan; Laura T. Gifford; Michael Gochfeld, M.D.; Ashby Hammond; Clive Hardy; J. D. Harter, Curator of Paintings, Louisiana State Museum, Jackson Square, Vieux Carré, New Orleans; Ruth E. Hill, Librarian, Museum of Comparative Zoology, Harvard University; Carl F. Miller, Assistant Manuscript Librarian, American Philosophical Society; Thomas Perry, Frick Art References Library, New York; Dr. Francis B. Trudeau, Jr., Saranac Lake, New York; and Margaret Wright, Professor of Biology and Curator of the Natural History Museum, Vassar College. Typing and illustrations were funded from a grant from the Josiah Macy, Jr. Foundation to the Boston University School of Medicine.

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[59] These volumes were in the Army Medical Library

[60] Ewan, "James Trudeau," p. 261.

SAMUEL T. DARLING: STUDIES ON MALARIA AND THE PANAMA CANAL

ENRIQUE CHAVES-CARBALLO

Ferdinand de Lesseps envisaged the construction of a sea-level canal on the isthmus of Panama as an easier challenge than the one he had encountered at Suez.[1] Under his charismatic leadership, the *Compagnie Universelle du Canal Interocéanique* raised the necessary funds to begin excavating the canal in 1881. Eight years later, the French company collapsed after an estimated loss of $287 million[2] and 16,000 lives.[3] Poor administration, mismanagement of funds and inexpert technical advice were blamed for the financial debacle; malaria and yellow fever accounted for many of the deaths. After nearly a quarter of a century of unsuccessful attempts to complete an interoceanic canal in Panama, the French abandoned the project and transferred their property to the United States in 1904.[4]

Theodore Roosevelt recognized the important role that sanitation would play in the American enterprise and appointed William C. Gorgas as Chief Sanitary Officer of the Canal Zone.[5] Gorgas believed that yellow fever was the major health problem in Panama and concentrated his initial efforts on eliminating *Stegomyia* breeding places, fumigating and screening houses, isolating patients and quarantining potential cases. These

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[1] *Bulletin du Canal Interocéanique*, March 4, 1881, n 37: 330-334. The *Bulletin* was published every two weeks uninterruptedly from Sept. 1, 1879 until Feb 2, 1889. It provided subscribers with a detailed, although biased, account of the activities of the *Compagnie Universelle du Canal Interocéanique*

[2] G. Mack, *The Land Divided A History of the Panama Canal and Other Isthmian Canal Projects* (New York: Alfred A Knopf, 1944), p. 355.

[3] W. P. Chamberlain, *Twenty-five Years of American Medical Activity on the Isthmus of Panama A Triumph of Preventive Medicine* (Mt. Hope, Canal Zone: Panama Canal Press, 1929), p 8 This represents a conservative estimate of the number of deaths for this period; the actual figure is not known. Gorgas found records of 5,518 deaths in the French hospitals, of which 1,026 were from yellow fever and 1,368 were from malaria However, contractors were charged for admitting employees to the hospitals and, therefore, many of the sick workers died without hospitalization. Gorgas estimated that the French lost 22,189 workers from 1881 to 1889 (W C Gorgas, "Sanitation at Panama," *JAMA*, 1912, *58* 908)

[4] J S Simmons, *Malaria in Panama* (Baltimore· The Johns Hopkins University Press, 1939), p. 67. Lieut Mark Brook, U.S Army, formally received the Panama Canal Zone in the name of the United States at 7·30 a m. on May 4, 1904

[5] G Mack, *Land Divided*, p 535 Gorgas was appointed Chief Sanitary Officer of the Canal Zone in 1904 but did not become a full member of the Isthmian Canal Commission until 1907.

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control measures proved remarkably effective: the last local case of yellow fever was recorded in 1906.[6] Unfortunately, the sanitation program which led to the eradication of yellow fever was virtually ineffective against malaria. Morbidity from malaria among canal workers increased to 21,795 cases, or 821 per thousand, during 1906.[7] To solve a health problem of this magnitude required a detailed study of the malaria parasite and its vector. Such a scientific basis for the malaria control program was provided by Samuel T. Darling.

Darling had graduated at the head of his class from the Baltimore College of Physicians and Surgeons in 1903. Following graduation, he had gained laboratory experience as instructor in histology and pathology at his alma mater, as resident pathologist at Baltimore City Hospital, and as instructor in bacteriology at the Women's Medical College in Baltimore.[8]

The events leading to Darling's decision to work in Panama were initiated by a letter from the Secretary of the Isthmian Canal Commission to the Dean of the Johns Hopkins University School of Medicine soliciting three physicians for the posts of "internes" on the medical service of the isthmus.[9] Dr. William H. Welch replied:

> I have found only one whom I can recommend at present. . . . The candidate . . . is Dr. S. T. Darling. . . . He is, I think, fitted for a higher position in the service than that of interne, and would be reluctant to take this position unless there was a fair prospect of promotion, provided his work and qualifications proved satisfactory. . . . My judgment would be to give such a man a trial, as in this way it may be possible to fill the higher positions with those already known to Dr. Gorgas and others in charge of the hospital and laboratory work.[10]

With Welch's recommendation, Darling was offered a position as "interne" at Ancon Hospital (now Gorgas Hospital) and a corresponding salary of $50 per month.[11] At Gorgas' request, Dr. Henry R. Carter, Chief Quarantine Officer, interviewed Darling in Baltimore and reportedly was "charmed to find so interesting and promising a young man to add to the medical staff of the isthmus."[12] Darling was 32 years old when he arrived in Panama in February 1905. From the rank of "interne," Darling was promoted to "physician" in charge of one of the wards, and then to "pathologist." On October 5, 1905, scarcely eight months after his arrival, Darling was appointed Chief of the Board of Health Laboratories.[13]

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[6] W. C. Gorgas, *Sanitation in Panama* (New York. D. Appleton, 1916), p. 156

[7] Simmons, *Malaria*, p. 103

[8] Following Abraham Flexner's report in 1910, the Baltimore College of Physicians and Surgeons merged into the University of Maryland School of Medicine and the Women's Medical College closed its doors In 1909 the title of the Institution formerly known as Baltimore City Hospital was changed to Mercy Hospital See G. Baum, *Samuel Taylor Darling* (Cincinnati: Private edition, 1957), p 6

[9] Secretary of the Isthmian Canal Commission to Welch, Jan 27, 1905, Panama Canal Company Personnel Bureau Files, Ancon, Canal Zone.

[10] Welch to Murphy, Feb 1, 1905, *Ibid.*

[11] Murphy to Darling, Feb 8, 1905, *Ibid*

The Board of Health had been developed in response to a decree from the president of Panama authorizing Americans to assume charge of the sanitation of Panama City and Colon.[14] The Board of Health Laboratories provided the necessary support for the broad responsibilities of the Board.

The Board of Health Laboratories were housed in a wooden-frame building that had been occupied previously by the pharmacy of the old French hospital. Darling located the autopsy service in the rear part of the building; the laboratories occupied the remaining space.[15] A visitor described the activities in Darling's laboratories:

> In a small, unpretentious building, Dr. Darling carries on his multifarious duties and researches . . . his laboratory . . . examines anything from throat swabs for diphtheria to gear grease from engines. Fire clay and malignant tumors are equally seen for examination. Apart from all this work, which, although routine, is of the highest value to the community, Dr. Darling has found time to carry on research work on a number of important subjects.[16]

A considerable amount of clinical material was sent to Darling's laboratories from the patient wards of the adjacent Ancon Hospital. In 1907, for example, 562 autopsies, 3,795 celloidin sections, 738 bacterial cultures and 146 tissues and neoplasms were examined by the Board of Health Laboratories,[17] Darling regarded this service as a most important part of his work. Even at a later date, when he was able to delegate some of his multiple duties to assistants, he insisted on doing the autopsy studies himself.[18] This practice led him to the recognition of an important parasitic disease of man which he called histoplasmosis.[19] Darling's widespread interest in tropical diseases resulted in numerous contributions in the field of parasitology; yet he considered himself primarily as a pathologist.[20]

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[12] F. F. Russell, "Darling's work in Panama and in the United States," *Internat Health Board Bull*. 1926, *6* 250-257.

[13] Baum, *Darling*, p 8

[14] W C. Gorgas, *Report of the Chief Sanitary Officer of the Canal Zone* (Washington, D.C U S. Govt. Printing Office, 1905), pp. 8-9

[15] Baum, *Darling*, p. 10 The site of Darling's laboratories is presently occupied by the Ancon Dental Clinic.

[16] M Watson, *Rural Sanitation in the Tropics Being Notes and Observations in the Malay Archipelago, Panama and Other Lands* (New York· E. P. Dutton, 1915), p. 225.

[17] W C. Gorgas, *Annual Report of the Department of Sanitation of the Isthmian Canal Commission for the Year 1907* (Washington, D C : U.S. Govt Printing Office, 1907), pp. 58-59.

[18] Baum, *Darling*, p 10.

Few could have been more aware of the threat that malaria represented to the successful completion of the canal than Darling himself. He confirmed the diagnosis of "Malignant Fever, EA"[21] at the autopsy table with alarming frequency. In 1906 alone, 233 canal employees died from malaria and the annual death rate for that year exceeded even those recorded for French canal workers from 1888 to 1903.[22]

Darling approached the malaria problem systematically. First he developed simple methods for collecting, feeding and breeding mosquito larvae in his laboratory. He studied the taxonomy of *Anophelene* species from collections made over a period of five years. He was able to identify 11 different species and described in detail their morphologic characteristics and variations, relative distribution from season to season and from place to place. Having gathered these essential data, Darling proceeded to determine the susceptibility of each species to transmit malaria by dissecting mosquitoes that had been allowed to feed on patients with malaria:

> It is concluded from this series of experiments that *A. albimanus*, the common, white hind-footed mosquito—an extremely hardy, rapidly developing, adaptable mosquito, is the transmitter of estivo-autumnal fever and of tertian malarial fever in the Canal Zone at this time. Specimens of this species infected with tertian parasites become infective between nine and eleven and one-half days after the first feeding. When infected by estivo-autumnal parasites, sporozoites appeared in the salivary glands as early as the eleventh day in some mosquitoes, and later than twelve and one-half days in others.[23]

Based on the results of these laborious experiments, Darling introduced the concept of species-specific control, which ensured a more effective and economic implementation of the sanitation program against malaria.

Not satisfied with the efficacy of available larvicides, Darling tried different combinations of chemicals and developed a "larvacide" that became widely known and accepted.[24]

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[19] S T. Darling, "A protozoan general infection producing pseudotubercles in the lungs and focal necrosis in the liver, spleen and lymph nodes," *JAMA*, 1906, *46* 1283-1285

[20] Baum, *Darling*, p. 14.

[21] EA or estivo-autumnal fever referred to falciparum malaria and tertian fever to vivax malaria.

[22] Simmons, *Malaria*, p 121

[23] S T. Darling, *Studies on Malaria* (Mt Hope, Canal Zone· Panama Canal Press, 1910), p. 22. The monograph was printed also by the U S. Govt Printing Office in 1910.

> It was found that crude carbolic acid . . . when made into soap, with common resin and alkali, yielded a product which was an ideal larvacide, having excellent diffusing and toxic powers. . . . In this way a very valuable larvacide and disinfectant, miscible with water, was produced from a very inferior disinfectant.[25]

An interesting observation made by Darling concerned the musical note of mosquitoes, which he said was produced by vibration of the proboscis and not by movement of the wings.[26]

In another series of experiments, Darling studied the effect of quinine on the malaria parasite in patients. He observed that patients with as few as 12 gametocytes per cu. mm. of blood still represented a dangerous reservoir for the continued transmission of malaria and cautioned against their too early dismissal from hospitals.[27]

Additional investigations were made by Darling on the effect of sea water, salt, herbicides and algicides on larvae, the optimal composition and mesh of wire used for screening dwellings, the value of daily collection and destruction of mosquitoes, the differential leucocyte response in patients with malaria, and the usefulness of the splenic index to determine the prevalence of malaria in a community.

The results of these experiments and observations were published in 1910 in a 38-page monograph entitled *Studies on Malaria*. This publication established Darling's reputation as a leading malariologist and his laboratories became a mecca for serious students in the field. More importantly, the monograph described the scientific work that was mainly responsible for the control of malaria in Panama. The practical value of Darling's investigations was confirmed as the rate of admissions from malaria decreased from 821, in 1906, to 82 per thousand employees by the time the canal was completed in 1914.[28]

Unfortunately, little recognition was given to Darling's contribution to the sanitation of the isthmus in contemporary accounts of the sanitation work in Panama. Gorgas made only two brief references to Darling's work in a detailed description of American medical activities during the construction of the canal.[29] Such an oversight could not have been due to any animosity toward Darling. Both men sought each other's company and were seen frequently together walking along the jungle paths in Ancon hill.[30]

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[24] W G King, "Applied hygiene in the tropics: Darling's larvacide," *Trop Dis Bull*, 1914, *4* 199-200.

[25] S T. Darling, *Studies*, p. 29.

[26] *Ibid*, p. 25.

[27] *Ibid.*, p 23

[28] Simmons, *Malaria*, p. 103

As a man who avoided adulation and distractions from his laboratory work, Darling may have preferred to remain in the background as the world acclaimed the medical accomplishments in Panama as a triumph of preventive medicine. To have seen the canal completed and to have known that many lives had been saved through his studies on malaria may have been sufficient reward for Darling's scientific mind.

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[29] Gorgas, *Sanitation*, pp. 190, 238.

[30] Baum, *Darling*, p 10.

BLOODLETTING IN AMERICAN OBSTETRIC PRACTICE, 1800-1945*

A. CLAIR SIDDALL**

Prior to the twentieth century, bloodletting was considered by orthodox practitioners of medicine to be the most powerful remedy in the treatment of disease.[1] This therapy perhaps originated in folk lore[2] and was elevated to respectability when Hippocrates incorporated it into regular medical practice.[3] In 1847, it was said, that since his time, very little had been added to the stock of practical medical knowledge.[4]

In the United States and Europe, this ancient and popular cure-all was not employed in pregnancy as long as the midwives maintained their traditional monopoly over childbirth.[5] But the eighteenth and nineteenth centuries brought dramatic social changes for women in their maternal care. This was accomplished by well-trained male physicians who were willing to face popular prejudice and hostility and inaugurate scientific studies concerning this neglected area in medicine.[6]

Leadership in the development of obstetrics took place first in Great Britain and Europe. William Smellie (1697-1763) and William Hunter (1718-1833) and others, carried out careful investigations on the anatomy of the pregnant woman, on the mechanism of labor, and on the effective use of the obstetric forceps.[7] They introduced and extended the therapy of bloodletting for almost every complaint in pregnancy.

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* Revised version of a paper read at the 52nd annual meeting of the American Association for the History of Medicine, Pittsburgh, Pa., May 4, 1979.

** The author acknowledges with gratitude the assistance of archivist Ms. Glen Jenkins and her staff at the Allen Memorial Library in Cleveland.

[1] James Wardrop, *Curative Effects of the Abstraction of Blood* (Philadelphia: A Waldie, 1837), p 1. See also, Henry Clutterbuck, "Lectures on bloodletting," *London Med Gaz.*, 1838, *2* 9 and Marshall Hall, *Cyclopaedia of Practical Medicine*, ed. by John Forbes, Alexander Tweedie, John Conolly, 4 vol. (Philadelphia: Lea & Blanchard, 1845), 1 296.

[2] Henry E Sigerist, *A History of Medicine*, 2 vols. (New York· Oxford Univ. Press, 1951), 1 116, 202.

[3] Francis Adams, *The Genuine Works of Hippocrates* (Baltimore Williams & Wilkins, 1939), p 80 "Bleed in acute infections if the disease appears strong and the patient in the vigor of health."

[4] Clutterbuck, "Bloodletting," p. 89.

[5] Alex Lee, *Celsus on Medicine*, 2 vols. (London. E. Cox, 1831), 1. 99. "It is not a new practice to let blood by the incision of a vein: but it is new to embrace this remedy in almost every disease."

[6] William F Mengert, "The origin of the male midwife," *Annals Med. Hist.*, 1932, *4*, n. 5 453-465.

[7] J. W. Johnson, *William Smellie· The Master of British Midwifery* (Edinburgh & London. E. and S.

Bloodletting in American obstetric practice developed in two waves; the first larger swell is visible from 1800 to 1850;[8] the second smaller rise lasted from mid-century to 1945 with such treatment being confined to toxemia. Due to the scientific advances in physiology and pathology and due to an increasing popular resistance to all venesection therapy, the long accepted remedy of bloodletting in pregnancy was finally abandoned in the twentieth century.

It is not surprising that the practice of bloodletting in the treatment of disease had a direct influence on its use in pregnancy. In the gradual growth of an American obstetrical speciality after 1800, the leaders of greatest influence were located in Philadelphia. There they came under the shadow of Benjamin Rush (1746-1813) who had gained the reputation as the most renowned proponent of bloodletting in medical practice. He professed to have no faith in the healing power of nature. He believed and he taught his students at the University of Pennsylvania that the blood volume of the human body was 25 to 28 pounds[9] (12,500-14,500 cc.), instead of the true value of less than half that amount.[10]

Rush's observations on the immediate effects of bloodletting seemed to furnish evidence for multiple benefits which the obstetricians later found to be most desirable in pregnancy. Rush noted that bloodletting relieved pain, promoted relaxation and sleep, subdued fever and the force of the circulation, checked vomiting and prevented hemorrhage.[11] Finally, when

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Livingston, 1952), Fielding H Garrison, *History of Medicine*, 4th ed. (Philadelphia W. B. Saunders, 1960), pp. 339, 340.

[8] B. Fordyce Barker, "Bloodletting as a therapeutic resource in obstetric medicine," *Med and Surg Reporter*, 1871, *24*, n. 1. 1. "In all the consultations in obstetric practice . . during the last fifteen years, I do not recollect of an instance where bloodletting has been resorted to except a few cases of puerperal convulsions "

[9] Carl Binger, *Revolutionary Doctor: Benjamin Rush* (New York W W Norton, 1966), pp. 215, 227, 229 See also, Albrecht von Haller, *First Lines of Physiology*, First Am ed. Trans. 3rd Latin ed. (Troy. Obadiah Penniman & Co., 1803), ch 5, p. 66 True blood volume is 28 pounds

[10] F. A. Bainbridge & J Acworth Menzies, *Essentials of Physiology*, 3rd ed (London: Longmans, Green, 1919), p. 191: "Results indicate the blood forms one-thirteenth of the body weight " Also, W. W Wintrobe, *Clinical Hematology*, 7th ed. (Philadelphia: Lea & Febiger, 1975), p. 696 Average blood volume is 5000 cc.

[11] Binger, *Benjamin Rush*, p. 228 Note In addition to the obvious immediate physical effects of bloodletting, the patient, no doubt, experienced a strong psychological impact. The shedding of one's own blood could well have carried a feeling of purification, mystery and magic Because of the traditional prestige of bloodletting therapy, the patient likely felt a sense of security when he submitted to venesection. Other aspects of bloodletting must have been intriguing. It involved total cooperation between the patient and the physician. It was easy to carry out. It was an economical remedy since the cure of disease lay inside the body of each person Bloodletting was quickly available to rich and poor alike, whether in the city or in more remote regions In moderation it caused no harm but on the other hand, it was easily abused

bloodletting was carried to the point of syncope, a temporary total anesthesia of the patient resulted.

In 1803 Rush did not hesitate to advise bloodletting in pregnancy. In answering a query from Dr. Edward Miller, he asserted that no woman need suffer in parturition. Bloodletting, he wrote, would not only relieve pain and accelerate labor, but would also prevent many complaints, such as, "after pains, hemorrhage, obstructed lochia, retained placenta, prolapse of the uterus, inflamed breasts, colics, madness, and fever." Furthermore, he said the patient's friends would be pleased to see these good effects.[12] Therefore, at a time when no specific medications were available, bloodletting held top priority as long as it elicited the support of both the patient and the physician because, in the case of the patient, it was she who in the long term dictated her own treatment.

Bloodletting therapy became the fashion in American obstetric practice when the patients received little or no prenatal care and often endured ten or twelve pregnancies. Inevitably they must have suffered from a greater or lesser iron deficiency anemia with the demands of these multiple gestations.

The man who exerted the most influence on American obstetrics was William P. Dewees (1768-1841).[13] He was twenty-two years younger than Rush under whose patronage he came to Philadelphia in 1793. He was a forceful character and an independent thinker. He became Adjutant Professor of Midwifery at the University of Pennsylvania in 1825 and was noted as a fearless bloodletter in his speciality. Early in his career, Dewees wrote that, "few women object to being bled, nay they, for the most part, think it indispensable, when labor has been protracted."[14] As late as 1864, Hugh L. Hodge (1796-1873) who succeeded Dewees on the faculty, also testified that patients in labor expressed in the strongest terms, their sense of relief, mentally and physically, after the loss of 15 to 20 ounces (425-600 cc.) of blood.[15]

Like Rush, Dewees believed that excessive pain was not necessarily an accompaniment of labor.[16] Therefore, in a case of protracted labor with rigid uterine cervix, he proceeded as follows: While the patient stood erect, 30 or 40 ounces (900-1200 cc.) of blood were withdrawn from the arm vein to the point where the patient fainted. After being replaced in bed, she was often totally unaware when the infant was delivered.[17] He found that this method required less blood loss than if venesection was done with the patient recumbent. Dewees reported two cases in this category; one of which required the withdrawal of two quarts (2000 cc.) of blood for satisfactory results and another requiring 50 ounces (1500 cc.).[18] Such therapy was employed only if the patient was plethoric and strong. Prior to the discovery of the general anesthetics at mid-century, nothing could surpass bloodletting in its prompt lessening of pain for the laboring patient.

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[12] Benjamin Rush, "Letter to Dr. Edward Miller," *Medical Repository*, 1803, 6 26-29

[13] Harold Speert, *Obstetric and Gynecologic Milestones* (New York. Macmillan, 1958), p 605

[14] William P. Dewees, *Essays on Various Subjects Connected with Midwifery* (Philadelphia H C Carey & I. Lea, 1823), p. 59.

[15] Hugh L Hodge, *Principles and Practice of Obstetrics* (New York. Blanchard and Lea, 1864), p. 424

[16] William P. Dewees, *An Essay of the Means of Lessening Pain and Facilitating Certain Cases of Difficult Parturition* (Philadelphia· J H Oswald, 1806), p. 95

During this time new theories were added to the old in order to justify the wide utilization of bloodletting in pregnancy. Thomas Denman (1733-1815) of London was the clearest spokesman for these generally accepted concepts. He stood next to Dewees in influence on American obstetric practice.[19] The fifth edition of his comprehensive and well written text was published in the United States in 1821. Its value was enhanced by the inclusion of numerous notes and comments by New York's outstanding obstetrician, John W. Francis (1789-1861).[20]

Denman's writings reflected the serious lack of progress in physiology and pathology when he stated that pregnancy was accompanied by a plethora which was due to the retention of the menses.[21] The term plethora had survived from early times and connoted an excess of blood in the system of the patient who exhibited a robustness with flushed face and a strong pulse.[22] Thus, plethora was a morbid condition fraught with danger which could be removed by bloodletting. Therefore, during the first half of the nineteenth century, the obstetricians bled their plethoric patients for almost all of their minor antenatal complaints, such as headaches, vertigo, nausea and vomiting, insomnia, apprehension, palpitation, muscle cramps, diarrhea, hemorrhoids, varicose veins, and swelling of the lower extremities.[23] Almost without fail, the patients expressed relief after venesection of a small amount of blood.

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[17] William P. Dewees, *Compendious System of Midwifery* (Philadelphia· H C Carey & I. Lea, 1824), pp. 370-371. Also, William Smellie, *Cases and Observations in Midwifery* (London T. Wilson & T Durham, 1758), p. 251. In contrast to Dewees, Smellie withdrew only eight ounces of blood in cases of protracted labor.

[18] Dewees, *Compendious System*, pp. 373, 377. See also, Daniel Drake, "Comment,", *Med and Physiol. J*, 1827-8, *10* 162, "In country practice 19 out of 20 cases, where females are generally of a strong plethoric habit, bleeding is required for protracted labor from rigid cervix" and Henry Miller, *Principles and Practice of Obstetrics* (Louisville· John V Cowling & Geo C. Davies, 1849), p 158. He agreed with the practice of the day—for the treatment of a rigid cervix—"the most successful remedy is bloodletting."

[19] Speert, *Milestones*, p 605.

[20] Thomas Denman, *An Introduction to the Practice of Midwifery*, From the last London ed., with notes and emendations by John W Francis (New York. E Bliss & E White, 1821)

[21] *Ibid*, p. 232 and footnote by John Francis, same page. Also see John Vaughan, "An inquiry into the utility of occasional bloodletting in the pregnant state of disease " *Medical Repository*, 1803, *6* 152 This author believes that during the ten lunar months of pregnancy, the patient retains in her circulation five to ten pounds of unshed menstrual blood.

[22] Robert M. Green, *Galen's Hygiene* (Springfield: Charles C Thomas, 1951), p. 251.

It is difficult to see how any patient under an obstetrician's care could escape venesection since it was considered an effective preventive measure as well as a curative one. For example, if a woman had a history of a previous abortion, it was considered beneficial during a subsequent gestation to withdraw a few ounces of blood soon after the first missed period, and then two or three times thereafter.[24] It was also considered a wise precaution to take 8 or 10 ounces of blood from normal prenatal patients in order to relax a rigid cervix and prevent post partum hemorrhage, infection and convulsions.[25] Prior to performing a podalic version, most practitioners employed moderate bloodletting.[26]

Denman explained further the generally accepted concepts, that in addition to plethora during pregnancy, the woman manifested a feverish disposition with increased body heat,[27] and an extreme irritability of the uterus.[28] Finally, he referred to the constant finding of a "buffy coat" on the surface of the patient's clotted blood.[29] John Hunter (1728-1793) discovered that, "women who are breeding, and are in perfect health, always have sizy blood (buffy coat) . . . this blood should not be called inflammatory blood, but blood whose powers of life are increased."[30] As blood from medical cases of severe inflammation manifested a similar buffy coat and they were traditionally treated by bloodletting, many obstetricians felt justified in using this sign for bloodletting in pregnancy. Many patients suffered needless loss of blood.[31] Denman hastens to reassure the reader that we have no reason to be solicitous about the investigation of the cause of all these changes in pregnancy because bloodletting would relieve them.[32]

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[23] Denman, *Practice of Midwifery*, pp. 227-8, 234, 248. See also, John Burns, *The Principles of Midwifery*, with notes by N. Chapman (Philadelphia. Hopkins & Earle, 1810), pp 172-185 and Charles White, *A Treatise on the Management of Pregnant and Lying-in Women* (London. Edward and Charles Dilly, 1777), p 221. White did not do bloodletting for minor complaints in pregnancy, "I never found bleeding necessary except when inflammation of the womb has been brought on by violence used in the extraction of the child or of the secundines "

[24] Denman, *Practice of Midwifery*, p. 642 Also, Samuel Bard, *A Compendium of the Theory and Practice of Midwifery* (New York Collins & Perkins, 1808), p 96.

[25] Charles Severn, *Practice of Midwifery* (London S. Highley, 1831), p. 51

[26] Denman, *Practice of Midwifery*, p. 633 Also see p. 651 under "Aphorisms" for Denman's more conservative attitude "The less the quantity of blood discharged postpartum, the better women in general recover " Also, Charles D. Meigs, *The Philadelphia Practice of Midwifery, Lectures on Midwifery* (Philadelphia· James K. Jun & Brother, 1838), p 254: "A patient bled to syncope will be more capable of undergoing safely the operation of turning", Edward Rigby, *A System of Midwifery* (Philadelphia· Lea & Blanchard, 1841), p 236

[27] Denman, *Practice of Midwifery*, p 231

[28] *Ibid.*, p 226

[29] *Ibid* , p. 231 See also Wardrop, *Curative Effects*, p 14. and Hodge, *Principles of Obstetrics*, p 94 "The buffy coat of coagulated blood is seen in cases of acute inflammation. The same is seen in pregnancy."

During the first half of the nineteenth century, the American obstetricians, like their European colleagues, adopted bloodletting not only for minor complaints but also for the major complications in pregnancy, such as hemorrhage, post partum infection and puerperal convulsions.

The paradoxical treatment of hemorrhage in pregnancy by bloodletting was based on the logic that in producing a faint by venesection, the force of the patient's circulation was so reduced that clotting could take place, which in turn checked the hemorrhage.[33] With this reasoning, Dewees proceeded in one case of threatened abortion at four months, complicated by hemorrhage, to bleed the patient 17 times in seven days. He withdrew a total of 110 ounces (3300 cc.) of blood. The hemorrhage was controlled and later a safe delivery achieved.[34] Francis reported a case who, in the last month of her eleventh pregnancy, suffered three gross hemorrhages. Each episode was treated by bloodletting of 8 ounces (240 cc.), 10 ounces (300 cc.) and 6 ounces (180 cc.) respectively. The patient fainted several times before the delivery of a stillborn infant. She suffered blindness for a period of six weeks post partum. Francis later asserted with obvious pride that it was incredible how much blood could be lost and yet with careful management, the patient would recover.[35] It is obvious that his only criterion for success was the survival of the patient.

[30] John Hunter, *A Treatise on the Blood, Inflammation and Gunshot Wounds* (London· John Richardson, 1794), p 316, footnote Also, Louis M. Hellman & Jack A. Prichard, editors, *Williams Obstetrics,* 14th ed (New York· Appleton, Century, Crofts, 1971), p 762 "The rapid sedimentation rate of erythrocytes is induced by the hyperfibrinogenemia of pregnancy "

[31] Hodge, *Principles of Obstetrics,* p 94. "The argument therefore is strong, that as similar conditions of the blood exist in pregnancy and in inflammatory complaints, there is an analogous condition of the general circulation." Also, Gunning Bedford, *System of Obstetrics* (New York Samuels & W Wood, 1861), p 134 "The general belief, so far as practice is concerned, is that wherever the buffy coat is recognized, it is an urgent indication for further depletion "

[32] Denman, *Practice of Midwifery,* p 232.

[33] Denman, *Practice of Midwifery,* p. 473, Bard, *Compendium of Midwifery,* p 156, Wardrop, *Curative Effects,* p 5

[34] Dewees, *Compendious System,* p. 408

[35] John W Francis, Footnote in Denman, *Practice of Midwifery,* pp 507-510. See also, Charles D

Toward mid-century voices were heard opposing this practice of treating hemorrhage by bloodletting,[36] the most cogent being the report of Gabriel Andral (1797-1876) of France. His laboratory studies revealed that during gestation there was a diminished number of red blood cells in the circulation of the pregnant woman and not an excess as long believed.[37] This proved to be the death blow to the old theory of plethora in pregnancy, and in time, bloodletting for hemorrhage became obsolete.[38] Gradually, substitutes for bloodletting were employed, such as wider use of ergot post partum, pouring cold water on the abdomen,[39] placing a piece of ice into the uterine cavity,[40] compression of the aorta,[41] intravenous saline solution, binding the lower extremities, routine use of iron medication,[42] and careful suturing of perineal and cervical lacerations.[43] Finally, this problem of hemorrhage was most successfully met when blood transfusions became practical in 1915.[44]

No complication of pregnancy presented a more distressing challenge to the nineteenth-century practitioner than puerperal fever. It is significant that no epidemic of this disease seems to have occurred as long as the midwives held their monopoly over childbirth.[45] The medical profession seemed mystified when early in the century, this disease spread rapidly

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Meigs, *Puerperal Fever* (Philadelphia. Ed Barrington & Geo. D. Haswell, 1842), p. 233 "I think it a great mistake to say that loss of blood, even an enormous loss, is in any degree injurious to the constitution of the individual " Also, Francis H Ramsbotham, *Principles and Practice of Obstetric Medicine and Surgery*, 1st Am ed. (Philadelphia: Lea & Blanchard, 1842), p 394. While most authors during this time paid close attention to the immediate effects of bloodletting and ignored the long-term ill effects, this writer was aware of the injuries which resulted "Some effects are evanescent, others do not occur for some time, but are more permanent Of the latter kind are cachexia, wasting, purgings, dyspepsia, dropsies, especially an edematous state of the legs and feet "

[36] Ramsbotham, *Obstetric Medicine*, p 397 "All evacuant remedies must be avoided, particularly bleeding (for hemorrhage), although I have known venesection repeatedly resorted to " William H Byford, *Theory and Practice of Obstetrics* (New York: Wm Wood, 1873), p. 389: "I cannot recommend bloodletting (for hemorrhage), it increases the effects of loss of blood . . . and is productive of great evil "

[37] G. Andral, *Essai d'hématologie pathologique* (Brussels Societé Encyclopédique des Sciences Médicales, 1843), p. 153

[38] Charles Jewett, ed , *Obstetrics* (New York. Lea Brothers, 1899), p 124. "Thirty-five years ago it was common to bleed the obstetric patient. Now that the blood conditions are better understood such practices have very properly become obsolete "

[39] Bedford, *System of Obstetrics*, p. 392

[40] William Thompson Lusk, *The Science and Art of Midwifery* (New York: D. Appleton, 1882), p 543.

[41] *Ibid* , p 539; P. Cazeaux, *Obstetrics*, 6th Am ed (Philadelphia Lindsay & Blakiston, 1877), p. 892. For postpartum hemorrhage, "I use compression of the aorta up to four hours."

[42] Barton Cooke Hirst, *A Text Book of Obstetrics* (Philadelphia: W B. Saunders, 1898), p. 542.

[43] Edward P. Davis, *Practical Obstetrics* (Philadelphia P Blakiston, 1898), p. 250.

[44] Arthur Hale Curtis, *Obstetrics and Gynecology*, 3 vols (Philadelphia W. B. Saunders, 1933), 3. 951.

[45] Bard, *Compendium of Midwifery*, p 308 "I have been so fortunate as never to see this fatal disease (puerperal fever) epidemic in the city of New York."

and was accompanied by a high mortality among those women admitted to the lying-in wards of the newly-formed hospitals across the country.[46] Controversy continued for many years as to its cause and treatment. Most practitioners believed that sporadic cases were inflammatory in nature and called for prompt bloodletting. On the other hand, the epidemic form was thought of as a fever peculiar to pregnancy and characterized by exhaustion and severe debility which contraindicated any general bloodletting.[47]

Denman admitted that early in his career he doubted the propriety of bloodletting in puerperal fever but later became convinced that it was absolutely necessary.[48] John Armstrong (1784-1829) of London presented other reasons for his early withdrawal of 24 ounces (720 cc.) of blood in such cases. He wrote that it was dangerous not to deplete these patients, "dangerous to one's reputation."[49] Did this not mean that he was bowing to the demands of his patients? Charles D. Meigs was convinced that all cases of post partum infection were peritonitis and therefore required bloodletting. He never believed that puerperal fever was contagious[50] even after the publication in 1843 of the convincing essay by Oliver Wendell Holmes (1809-1894)[51] and the life-saving experiments of Ignaz P. Semmelweis (1818-1865) three years later.[52] In one successful case, Meigs withdrew 52 ounces (1560 cc.) of blood over a span of 12 hours and followed this with calomel and opium by mouth.[53]

[46] T G Morton, *The History of the Pennsylvania Hospital* (Philadelphia: Times Printing House, 1895), p. 238. The Lying-in ward was opened in 1803 but closed in 1830 due to puerperal fever It was reopened in 1835 but abandoned in 1851 for the same reason. See also, B Fordyce Barker, *Puerperal Diseases* (New York D. Appleton, 1874), p 439 From all sources "More than 200 epidemics of this disease (puerperal fever) have been described by different authors since 1740 . a terribly fatal disease in lying-in hospitals in all great cities where such hospitals exist."

[47] Denman, *Practice of Midwifery*, p. 565 See also footnote on p 590 by John Francis. "It must be remembered that the typhoid form of this complaint is rarely to be seen in this country." John Armstrong, *Facts and Observations and Practical Illustrations Relative to Puerperal Fever*, 1st Am Ed. from 2nd London ed. (Hartford Oliver Cooke & Sons, 1823), p. 8 He treated both types of puerperal fever by bloodletting. Robert Collins, *Midwifery*, (London: Longmans, 1826), p. 180. For puerperal fever he applied 48 leeches to the abdomen.

[48] Denman, *Practice of Midwifery*, pp. 575, 576 Another practitioner with similar opinions was Charles White, *Treatise on Pregnant Women*, p. 72 "I am convinced that bleeding is too indiscriminately used and too often."

[49] Armstrong, *Puerperal Fever*, pp 42, 44

[50] Meigs, *Midwifery*, p. 352

[51] Oliver Wendell Holmes, "On the contagiousness of puerperal fever," *N Engl Quart J. Med and Surg.*, 1842-43, *1* 503-530

[52] Ignaz Philipp Semmelweis, "Höchst wichtige Erfahrungen uber die Aetiologie der in Gebaranstalten epidemischen Puerperalfieber," *Zeit Gesellsch d Aerzte in Wien*, 1847, *2*. 242; 1849, *5*· 64.

[53] Meigs, *Puerperal Fever*, p. 27.

Bloodletting for puerperal fever lost its prestige as practitioners accepted the increasing evidence of the contagious nature of the disease. It must have been a sad day when the obstetricians admitted their part in the spread of this dread infection. Cleanliness soon became the guideline and prevention the goal. Benjamin Fordyce Barker (1818-1891) in 1847 used Veratrum viride to serve as a substitute for bloodletting in treating this disease and for a time he followed the Alonzo Clark (1807-1887) method of utilizing only repeated doses of morphine.[54] In the 1870s bacteriologic research revealed the cause of this disease[55] and vaginal douches of 2 per cent carbolic acid solution became an accepted preventive measure. Finally, in 1935, sulfanilamide came on the market, followed in a few years by the antibiotics, which reduced maternal death from infection to its lowest level.

One of the most frightening complications of pregnancy is a convulsive disorder called eclampsia which is cured by the delivery of the infant. Dewees faced this syndrome with characteristic courage. In one case he drew a total of 120 ounces (3600 cc.) of blood from the vein over a period of seven hours and the patient survived.[56] He believed there was some advantage in releasing blood near the patient's head, therefore he often opened the jugular vein. Otherwise he used both arm veins at one time. Meigs found that a venesection of 30 to 60 ounces (900-1800 cc.) was adequate in controlling the convulsions if he then applied cups to the temples and nape of the neck.[57] In addition, he directed that the patient's head should be shaved so leeches could be applied to the scalp.

By mid-century professional and popular disapproval became significant factors in restraining all bloodletting therapy.[58] About this time ether and chloroform were employed, sometimes continuously for six hours, in order to control the eclamptic convulsions.[59] But the most effective substitute for bloodletting in this affection was Veratrum viride which came into use in the 1870s.[60] It reduced the excitement of the circulation, lowered the pulse rate to 30 or 40 beats per minute, as well as producing diaphoresis and diuresis.[61] Most important of all, it seemed to prevent any subsequent convulsions.

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[54] Garrison, *History of Medicine*, p. 577, also, Barker, *Puerperal Diseases*, pp 344, 492.

[55] Louis Pasteur, "Septicémie puerpérale," *Bull Acad de Méd* , 2^{e} Série, 1879, *8* 260-271

[56] Dewees, *Essay on Midwifery*, p. 167. He did not force labor, p 169.

[57] Meigs, *Midwifery*, pp 280, 282 Also, Hodge, *Principles of Obstetrics*, p. 449. "The introduction of free bleeding (for puerperal convulsions) by Denman, Ramsbotham Sr., and Dewees has greatly relieved the mortality which is now twenty-five per cent." Also, P Cazeaux, *Obstetrics*, p 817 As a substitute for bloodletting in eclampsia, Cazeaux used Junod's boots or cups

[58] Hirst, *Obstetrics*, p 579: "Venesection at present is somewhat in disfavor. The reaction against the indiscriminate use of the lancet has gone too far " Also, Leon S. Bryan, Jr , "Bloodletting in American medicine," *Bull. Hist. Med* , 1964, *38* 517, 528

[59] Barker, *Puerperal Diseases*, p 119 Also, Davis, *Obstetrics*, p 172

About the time when the obstetricians were rejecting bloodletting,[62] a new theory was proposed by Gunning Bedford (1806-1870) that puerperal convulsions were caused by a poison or a toxemia in the system.[63] Once again it became logical to withdraw blood in an attempt to remove at least a part of this poison. This new concept accounts for the second rise in bloodletting therapy in pregnancy. J. Whitridge Williams (1866-1931) of the Johns Hopkins University urged in his textbook of 1920, that 1000 cc. of blood should be taken from the eclamptic patient promptly, irrespective of the condition of the pulse.[64] Twenty-five years later the ill effects of such treatment were admitted and the modern conservative management of this still unsolved problem was summarized by Paul Titus (1885-1951) of Pittsburgh. He wrote, "omit venesection, colonic irrigations, gastric lavage, purging, and sweating." Instead he recommended the use of sedatives; hypertonic glucose solution intravenously, magnesium sulfate intramuscularly, and Veratrum viride.[65] Cesarean section was advised if the patient did not improve under medical management, otherwise labor was not forced.

In conclusion, bloodletting, which was uncritically accepted as the fashion in early American obstetric practice, finally was abandoned after one hundred and fifty years. Scientific advances gradually revealed the false premises on which bloodletting rested. In addition, the patients, who alone suffered the long-term ill effects, ultimately rebelled against its use.

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[60] Hirst, *Obstetrics*, p 579 For the past twenty-five years Veratrum viride has been the favored American treatment for eclampsia.

[61] Jewett, *Obstetrics*, p 527

[62] B. Fordyce Barker, "Bloodletting as a therapeutic resource in obstetric medicine," *Med and Surg Reporter*, 1871, *24*, n 1 1 "In all the consultations in obstetric practice with members of the profession during the last fifteen years, I cannot recollect a single instance where bloodletting has been resorted to, or even alluded to as a therapeutic measure to be discussed, except in a few cases of puerperal convulsions "

[63] J. Whitridge Williams, "A sketch of the history of obstetrics in the United States up to 1860," *Am. Gynec.*, 1903, *3*, n 1, 360.

[64] J Whitridge Williams, *Obstetrics*, 4th ed. (New York D Appleton, 1920), p 587 Also, Joseph B DeLee, *Principles and Practice of Obstetrics* (Philadelphia· W. B Saunders Co , 1913), p. 367· "Venesection should be reserved until after delivery "

[65] Paul Titus, *The Management of Obstetric Difficulties* (St Louis· C V Mosby, 1945), p. 432 and Hellman, *Obstetrics*, p. 727.

DISINFECTION OF MAIL IN THE UNITED STATES*

EMMET F. PEARSON AND WYNDHAM MILES

Disinfection of mail in an effort to control the dissemination of smallpox, plague, typhus, cholera, yellow fever, leprosy, tuberculosis and other pestilences has often been attempted in various locations in the United States since Colonial times. Study, preservation, collection, and scrutiny of disinfected mail comprise a relatively unexplored chapter in the history of epidemiology and social reaction. Yet this fascinating story of the sometimes heroic efforts to protect the public before the etiology and epidemiology of infectious diseases became known should appeal to philatelists, epidemiologists, bacteriologists, sociologists and medical historians alike.

Dr. Karl F. Meyer, eminent San Francisco epidemiologist, philatelist and author of the book *Disinfected Mail,*[1] published in 1952, told one of the authors (E.P.) shortly before his death in 1974 that he had found the search for information and examples of disinfected mail in the U.S.A. to be "frustrating." Our search, however, has been successful. One of us (W.M.) has found information on more than 100 instances of American mail disinfection in the voluminous reports of various state and city public health agencies deposited in the National Library of Medicine.[2]

Documentation of where, when, why and how disinfection of mail was practiced in this country has been done by corroborating information obtained from the public health reports with the few extant disinfected covers that we have been able to collect. Other collectors, including the late Dr. Meyer, have also supplied us with photographs of various examples. While the bits of evidence we have found represent only the tip of the iceberg, they show that disinfection of mail was a common practice in this country during certain epidemics.

Professional historians have not always found a wealth of primary material to document the enormous importance of the role disease played in the destiny of the United States. Some significant material has been found and studied by postal historians and recorded in philatetic journals. Not only do they acquire information from the evidence on the covers of mail, but the contents of these letters frequently speak of the epidemics that are raging, and their effect on politics, economics and the spirit of the people. Philatelists deserve more recognition as historians.[3]

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* Revised version of a paper presented at the 51st annual meeting of the AAHM, Galveston, Texas, May 15, 1976

[1] Karl F Meyer, *Disinfected Mail,* (Holton, Kansas: The Gossip Press, 1952).

[2] Public Health Reports in the National Library of Medicine, (Bethesda, Maryland) About one hundred specific references to locations, time and methods of disinfection are in the files of the National Library of Medicine and most have not heretofore been published. See the chart on pages 10-14. Specific references to the National Library material will be supplied by the authors upon request.

At the time when the American colonies and states were developing, the use of quarantine stations and the practice of disinfection of mail had been in effect for about 300 years in the Mediterranean ports and at the entrance to many European cities. The Venetians instituted disinfection procedures in the 16th century and this part of the effort to control epidemic diseases was practised over much of Europe during the 18th and 19th centuries.

Disinfection of all soft goods, including mail from all quarantined ships and from all epidemic localities, was a generally accepted procedure, and fumigation with various noxious smokes and fumes was believed to serve this purpose. In some places, an envelope was opened, the contents fumigated and the letter resealed with a stamp or seal to indicate its purity. As mail traffic increased, opening mail became impractical, and letters were punched full of holes. Envelopes were slit or the corners were clipped—presumably to let the fumes penetrate. At still later dates, letters were fumigated in large quantities and only the bags were marked to indicate that the mail had been fumigated. After mail had been treated, a certificate of "practique" was issued so that a batch could be moved across a quarantine line.

Sulphur fumes, which were the principal chemical used for disinfection for 300 years, caused stains. Formalin and chlorine gas were later found to be more effective and easier to use. Many other substances were also employed. Vinegar, which was known to preserve some foods, was thought capable of killing any infectious agent. The process of dipping letters in vinegar was thus used for 300 years in spite of its undesirable and inevitable effect on ink and paper. Almost any kind of noxious or pungent vapors was used at some time, such as burning pitch, phosphorus fumes, potassium cyanide, perfumes, and incense.

In the New World, the Old World methods of quarantine and disinfection of soft goods were promptly put into effect by the Spanish in the

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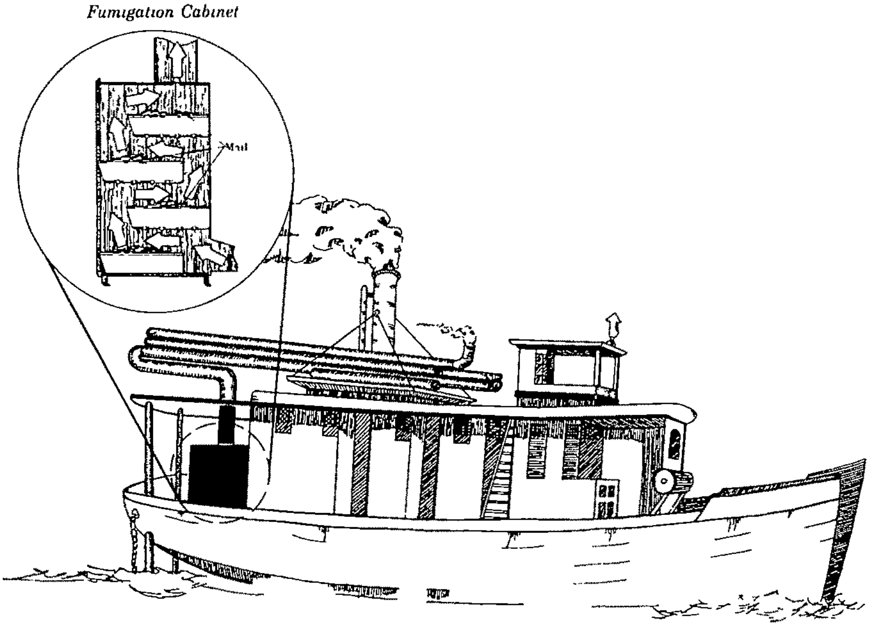
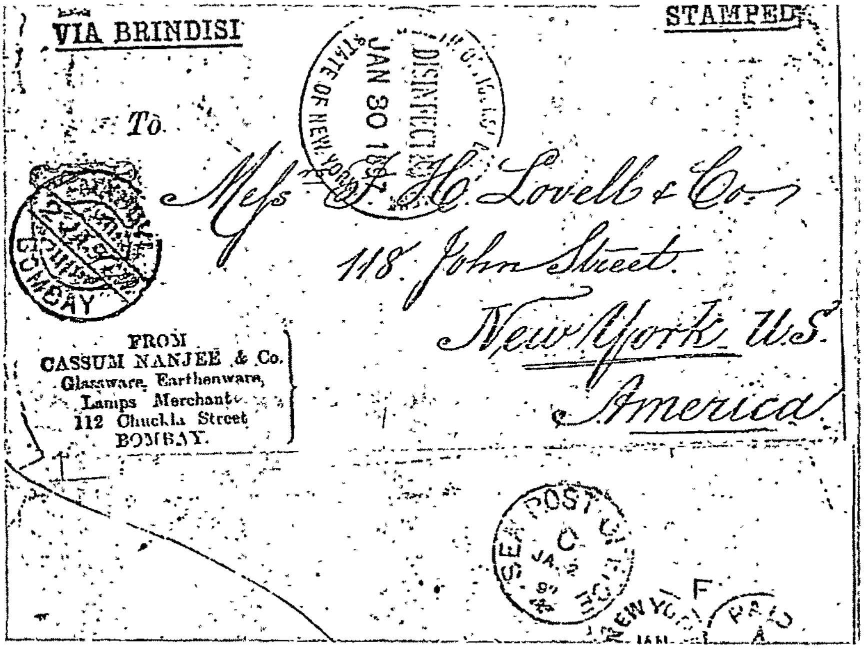
[3] C J. Newerla, *Medical History in Philately* (Freeman, South Dakota Pine Hill Press, 1971)



Tugboat Used to Disinfect Mail With Sulphur Gas-New Orleans About 1898-(Yellow Fever)



VIA BRINDISI

STAMPED

DISINFECTED JAN 30 1897 STATE OF NEW YORK

To

Mess J. H. Lovell & Co
118 John Street
New York U.S.
America

BOMBAY

FROM
CASSUM NANJEE & Co.
Glassware, Earthenware,
Lamps Merchants
112 Chuckla Street
BOMBAY.

SEA POST OFFICE C JA 2 97

NEW YORK F PAID

Letter from Bombay - Disinfected at New York January 30, 1897 - from K F. Meyer collection. Courtesy Denis Van der Velde (not previously published).

Caribbean, by the French in Canada, and by the British in the seaports of the various colonies in the 17th and 18th centuries. The disinfection methods used on mail in the United States followed European precedents but varied greatly with time and location depending partly on the materials available and the prejudices of the local authorities. As in Europe sulphur fumes were the most common method of fumigation in the early years of the colonies and republic, but by the middle of the 19th century formalin gas was most commonly used.

The use of live steam, pressing with hot irons, cooking in hot ovens, exposure of mail to bright sunlight or ultraviolet radiation all appear to have been American innovations. Sometimes individuals fumigated their own mail. While Sir William Osler was recovering from smallpox in 1876, he sent a letter from Montreal to a friend and added, "You need not be afraid of this letter, I will disinfect it before sending." He did not indicate how he would do the disinfecting.[4]

The first quarantine in the United States occurred in the Massachusetts Bay Colony in 1647-1648 for ships from the West Indies where yellow fever was prevalent. New York Harbor was quarantined against some ships in 1755, and occasionally thereafter. Boston Harbor exercised quarantine in 1678 and in 1712 with disinfecting procedures including sulphur fumes being applied to mail. A lazaretto, or quarantine station, was established on Providence Island in the Schuylkill River (Philadelphia) during epidemics of yellow fever and smallpox in 1743. Dr. Thomas Hood was the lazaretto physician in what may have been the first "hospital" in the colonies. Lazarettos at Philadelphia were active during the 1799 yellow fever epidemic, the 1805 smallpox and yellow fever epidemics, a cholera epidemic in 1832, and 1837 outbreak of typhus, and another cholera epidemic in 1893. Lazarettos were also established early on in Baltimore, Charleston and New Orleans with European-style disinfection of goods, including mail. However, there was no uniformity, as each colony or port had its own theory and procedure.

In the early years of the Republic, there was much confusion regarding quarantine. The Marine Hospital Service, later named the U.S. Public Health Service, had been in operation since 1799, but had no authority to enforce quarantine and disinfection until the Quarantine Act of 1873 gave it supervisory power. One problem was in accuracy in diagnosis. Omnibus classifications were used to cover various fevers. Doctors often

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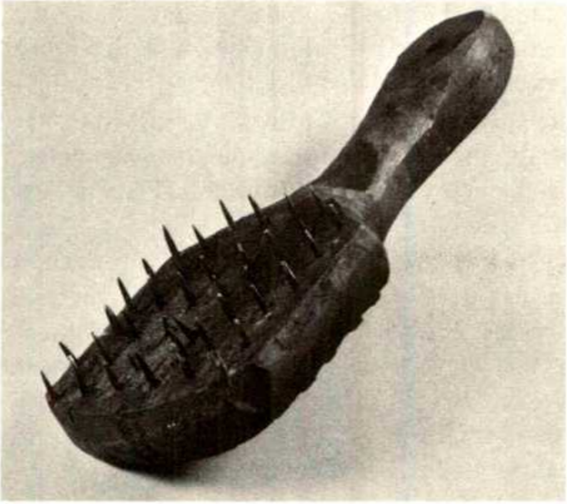
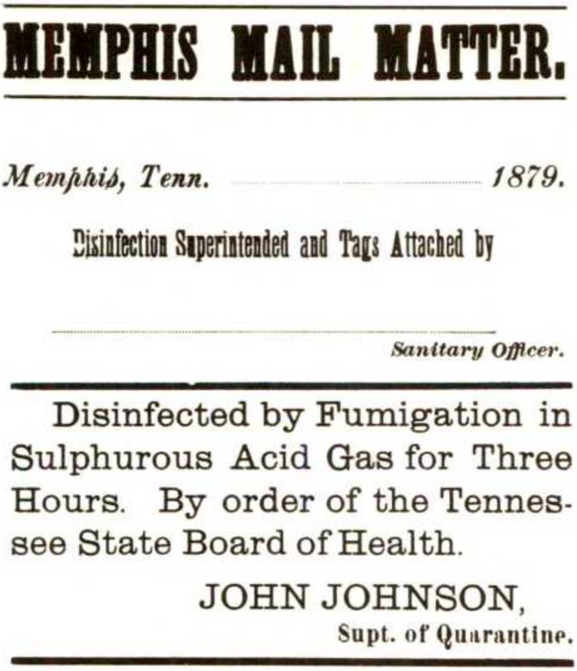
[4] Harvey Cushing, *The Life of Sir William Osler*, 2 vols. (Oxford· Clarendon Press, 1925), vol. 1., p 163.



Improvised paddle with spikes for perforating letters before fumigation. The paddle or "Rastel" owned by Smithsonian Institution and illustrated in K. F. Meyer's book is now one of the exhibits on The American Freedom Train on cross country tour.



MEMPHIS MAIL MATTER.

Memphis, Tenn. .... *1879.*

Disinfection Superintended and Tags Attached by

....

Sanitary Officer.

Disinfected by Fumigation in Sulphurous Acid Gas for Three Hours. By order of the Tennessee State Board of Health.

JOHN JOHNSON,
Supt. of Quarantine.

Tags attached to fumigated mail bag at Memphis—1879. Courtesy of National Library of Medicine.

disagreed on terminology and even on the basic principle of communicability of epidemic diseases. About the only readily identifiable diseases were smallpox, bubonic plague and yellow fever.

In 1873, Public Health Surgeon C. Brown described deplorable conditions in most quarantine stations in this country. No standards were established for disinfection of mail until the first Federal Act to Control Contagion in 1878.

From the beginning of the 19th century, there is a wealth of available information regarding disinfection of mail, but only an occasional treated cover has been preserved, identified and documented—just enough to know what was being done. Smallpox continued to appear endemically in spite of widespread vaccination, and mail from infected areas was regularly treated. Other diseases, such as scarlet fever, diphtheria, influenza, typhoid, tuberculosis, leprosy and poliomyelitis often required disinfection of outgoing mail from hospitals. In these cases, however, a lesser degree of vigilance was maintained compared with that in force during smallpox, cholera and yellow fever outbreaks.

Cholera became rampant in great epidemics in 1832, 1849, and in the 1860s. The term "cholera letter" referred to mail that had been fumigated during the epidemics. Until about 1905, yellow fever came in annual summer epidemics with high mortality at seaports and up the Mississippi River from New Orleans as far north as Cairo, Illinois. The public was justifiably frightened and demanded quarantine and disinfection of mail from yellow fever foci, namely, the tropics, Florida, New Orleans and Mexico. Plague was introduced to the West Coast from the Orient in 1898, and a sanitary cordon was established around San Francisco's Chinatown with mail being treated.[5]

The Marine Hospital Service presumably sent the same instructions regarding disinfection of mail to all existing states in 1888, but reports from only twenty of the present states have thus far been found.[6] One would expect to find reports from South Carolina, Kentucky, Arkansas, Maryland and New York, but neither reports nor disinfected items from these states are known to have been preserved.

Perhaps the most massive incidence of mail fumigation was done at the Waycross, Georgia disinfection station where most of the mail coming north from Florida was routed during the yellow fever epidemic of 1888.

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[5] Marine Hospital Service Report, "Report Regarding Mail from China," (1898), pp. 826-827.

[6] Marine Hospital Service Report, "Report on Quarantine Conference at Montgomery, Alabama," (1889), p. 10.

Several special boxcars were dispatched to Waycross. With chicken wire stretched across the cars to hold the mail, sulphur was burned in the cars for several hours. In other instances, live steam from locomotives was piped into the cars. After fumigation, mail was sometimes sprayed with bichloride of mercury. The fumigation was carried out by the Railway Mail Service with the Marine Hospital Service supplying the chemicals. A force of eight or ten extra postal employees worked night and day at the peak of the quarantine. A few covers that were treated at Waycross have been found by collectors.

In 1885, the Public Health Service conducted experiments to determine the best method of disinfecting mail. Anthrax bacilli, cholera bacilli, typhoid bacilli and other germs were placed inside envelopes which were then punctured and exposed to a wide variety of gases. Although these experiments were not conclusive, formalin gas became the most widely accepted method.

Disinfection of personal letters was not a universally popular practice. An 1887 Public Health Surgeon in Key West contended, "The use of wooden paddles studded with nails to perforate the mail are instruments of torture and delay and ineffective because of sealing the holes of entrance and exit." General F. E. Spinner, formerly Treasurer of the United States, then living at Pablo Beach near Jacksonville, wrote to John J. Long, Esq., Montpelier, Vermont, on October 21, 1887:

> Your very kind,—letter—came here—punched as full of holes as your Donax sieve, and smelling of hellfire and brimstone—let a clean letter come from the pure air of the Green Mountains and the cursed fools at the fumigating station seize it, punch it so that it is almost illegible, then pump an unbearable stink into it.[7]

On September 14, 1901, the following message was sent from the Marine Hospital, San Francisco, to Washington, D.C.:

> Disinfection of outgoing mail because of smallpox in San Francisco. Six hours delay unnecessary. Last batches of mail before departing steamer may be sufficiently disinfected by blotting paper with formalin placed in sacks. *Letters being punctured.*

In the wake of the work of Pasteur, Koch, et al., Public Health authorities became enlightened by 1890 and although the policies regarding quarantine were continued, disinfection of mail fell into disfavor. In 1906, a Public Health surgeon stated, "It is barely possible—not probable—that

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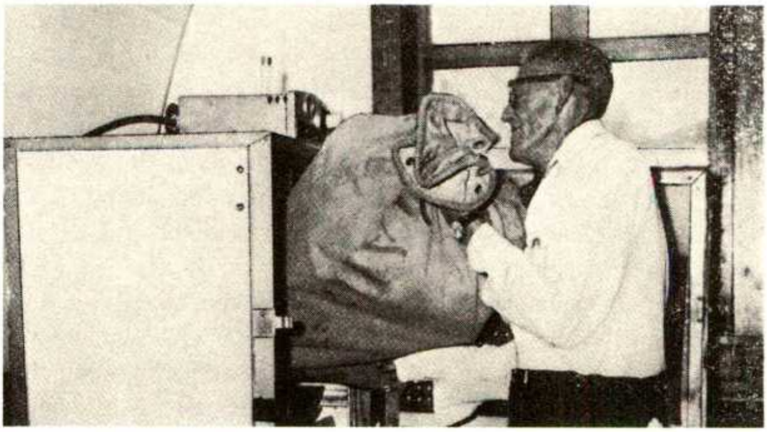
[7] Marty Etta Lave, "Florida's hell, fire and brimstone mail," *Weekly Philatelic Gossip*, August 8, 1953, 56(23): 735-750.

Mail Sterilization Ends



THE OLD WAY – Darryl Broussard, postal clerk in charge of the local branch post office placing mail for dispatch in the 'oven.'

Carville, La. (Leprosarium) 1968

first class mail may convey infection—it may be considered that disinfection of mail is a generally useless labor and expensive—but clamor and fears of the public may render it necessary." Mail continued to be disinfected during epidemics of yellow fever even after mosquito transmission of that disease was verified in 1898—probably due to custom and public demand. Finally in 1907, the second International Convention of American Republics in Washington, D.C. lifted all quarantine and disinfection of mail from yellow fever areas.

There are good records of disinfection of all mail from the two contagious disease hospitals in Philadelphia from 1900 to 1916 where approximately 50,000 pieces of mail were fumigated yearly. This indicates that similar procedures must have been practiced in other major cities, but concurring records from other hospitals have not yet been found.

Mail from patients in leprosariums in Molokai, Hawaii, and Carville, Louisiana, continued to be disinfected by baking in electric ovens until 1968 despite protests of local officials. Until then, no one in the bureaucratic hierarchy had been willing to take the responsibility of putting an end to the procedure.[8]

This study of disinfection of mail in the United States represents only a spot check of what procedures were followed in many places. Letters marked "disinfected," "fumigated," "sterilized," or "quarantined," or some showing punch holes, slits, cropped corners and discolorations may yet be found. The enormous bulk of mail that was disinfected shows no easily identifiable markings. Many thousands of letters, which would now be important collectors' items, were originally considered insignificant and were long ago discarded. Medicine owes a debt of gratitude to the philatelists who have collected, preserved and studied the historical implications of examples of disinfected mail.

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[8] Editorial, "Mail Sterilization Ends," *The Star*, Carville, Louisiana, October, 1968, *28*, n. 1: 2.

Although the probablility of transmitting any viable virus or bacteria by mail is now discredited, there were many recorded observations in various states by local health authorities that the first case of an epidemic was contracted from a letter mailed by a sick person.[9] While the most frequently recorded cases concerned smallpox, some instances of scarlet fever were also said to have been contracted from infected mail. An Eau Claire, Wisconsin, health officer made the following report, dated May 22, 1900, concerning an epidemic of smallpox: "The first case originated from a perforated and disinfected letter from West Virginia which evidently was not sufficiently disinfected." Authorities in Ohio reported in the same year that five clerks in postal cars of the Pennsylvania railroad contracted smallpox from handling mail from epidemic areas.

There is no way to guarantee that some future virus might not acquire unforeseen virulence and be transmissible by clothing or mail. For example smallpox skin sheddings are known to be infectious for prolonged periods. It should be noted that the virus of foot and mouth disease in cattle has a long extracorporeal life and can be transmitted by mail. Some other virus might be just as persistent.

Much of the effort expended to disinfect mail over a period of 500 years might at first appear to have been futile in light of modern knowledge. But even in its futility, the heroic effort at disinfection of mail created an awareness of contagion and a favorable attitude toward isolation and quarantine in this country. Although some early disinfection methods were not scientifically conceived, they did help to eliminate rats, lice, fleas and mosquitos, and, by acts of serendipity, were partly successful in disease control.

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[9] Charles F. Adams, "Report on Transmission of Contagious Disease by Mail," *American Medicine*, 1904, *7*: 582.

QUARANTINE AND DISINFECTION OF MAIL

WHERE	*WHEN*	*WHY*	*WHAT WAS DONE*
Massachusetts Bay	1647	Yellow Fever	Ships quarantined, goods disinfected.
Massachusetts Bay	1647	Smallpox	Ships quarantined, goods disinfected.
New York City	1655	Smallpox	Ships quarantined, goods disinfected.
Boston	1678	Smallpox	Ship mail exposed to sunlight.
New England	1699	Smallpox	Ships quarantined, goods disinfected.
Pennsylvania	1700	Smallpox	Ships quarantined, goods disinfected.
Boston	1701	Smallpox	Isolation facilities and disinfection.
New Orleans	1701	Smallpox	Isolation and fumigation.
Philadelphia	1709	Any pestilence	Quaker pest house—disinfection.
Boston	1712	Smallpox	Ships quarantined, goods disinfected.
Haiti	1721	Plague	Ships from Marsailles quarantined.
Virginia	1722	Smallpox	Ships quarantined, goods disinfected.
Maryland	1731-44	Smallpox	Ships quarantined, goods disinfected.
Philadelphia	1743	Smallpox	Lazaretto on island in Schuylkill River.
New Orleans	1743	All diseases	Pest house—all mail fumigated.
Tybe, Ga.	1747	Smallpox	Lazaretto quarantine and disinfection.
New York City	1755	Smallpox	Ships quarantined and goods disinfected.
New York	1755	Typhus	Ships quarantined, Bledsoe Island.
Augusta, Ga.	1758	Smallpox	Sanitary cordon—disinfection at Ebenezer.
New York Harbor	1758	Smallpox Typhus	Bledsoe Island quarantine, and disinfection.
Sullivan Island, S.C.	1759	Smallpox	Quarantine among Catawa & Chickasaw Indians.
New Orleans	1787	Plague	Lazaretto with disinfections.
Baltimore, Md.	1797	Yellow Fever	Letters incised, fumigated with sulphuric acid.

WHERE	*WHEN*	*WHY*	*WHAT WAS DONE*
Boston	1799	Smallpox	Marine hospital isolation and disinfection.
New York	1803	Yellow Fever	One extant disinfected cover.
Philadelphia	1805	Yellow Fever	Lazaretto established, disinfections.
Boston	1814	Smallpox	Ships quarantined, and disinfected.
U.S. Station on Port Malion	1818	Smallpox	Ships quarantined, and disinfected.
Boston	1831	Cholera	Quarantine and disinfection.
New Orleans	1822	Yellow Fever	All ships fumigated.
Philadelphia	1832	Y.F. & Cholera	Extant disinfected letters, Lazaretto.
U.S. Naval Station	1832	Y.F. & Cholera	Letters punctured and dipped in vinegar.
Boston	1835	Yellow Fever	Letter from Puerto Rico disinfected.
Philadelphia	1847	Plague	Lazaretto reactivated with disinfections.
Boston Harbor	1833	Cholera	Letter Palermo to New York disinfected.
Philadelphia	1855	Yellow Fever	Ships quarantined and mail disinfected.
Philadelphia	1863	Yellow Fever	One Confederate States letter disinfection known.
Philadelphia	1872	Cholera	"Deplorable" quarantine, disinfection.
New York City	1873	Typhus	Blackwell Island quarantine and disinfection.
Memphis	1879	Yellow Fever	Mail baked in ovens.
St. Joseph County, Mich.	1882	Smallpox	All mail disinfected.
Brownsville, Texas	1882	Yellow Fever	Sanitary cordon with disinfections.
St. Louis, Mo.	1886	Yellow Fever	Holes cut in letters, fumigated.
Jacksonville, Fl.	1887	Yellow Fever	Goods and mail disinfected.
Key West, Fl.	1887	Yellow Fever	Disinfection of all mail on train by formaldehyde gas.
Tampa, Fl.	1887	Yellow Fever	All mail fumigated.
Apalachicola, Fl.	1887	Yellow Fever	Ships quarantined, mail fumigated.
Azalia, Mich.	1888-89	Smallpox	Outgoing mail fumigated.
Live Oak, Fl.	1888	Yellow Fever	All mail fumigated in boxcars.
Camp Petty, Ga.	1888	Yellow Fever	All mail fumigated in boxcars.

WHERE	*WHEN*	*WHY*	*WHAT WAS DONE*
Macon, Ga.	1888	Yellow Fever	Letters punctured and fumigated.
McPherson, Kansas	1888	Smallpox	All mail fumigated with formalin.
Madison, Fl.	1888	Yellow Fever	Quarantine and mail fumigated.
Hawks Park, Fl.	1888	Yellow Fever	Mail fumigated.
Mataryas, Fl.	1888	Yellow Fever	An advertisement was marked "Fumigated."
Waycross, Ga.	1888	Yellow Fever	Sulphur fumigation in boxcars.
Key West	1888	Yellow Fever	All mail from Havana disinfected.
Flamaton, Ala.	1888	Cholera	A letter Escambria, Fl. to Cleveland disinfected.
Waycross, Ga.	1889	Yellow Fever	Mail cars treated with steam from locomotive engine.
Mullet Key, Fl.	1891-92	Cholera	Sulphur fumigation house built.
New York	1892	Cholera	Mail from epidemic countries fumigated.
Roanoke, West Va.	1893	Smallpox	Quarantine and disinfections.
Muncie, Indiana	1893	Smallpox	Sheet iron box used for fumigating mail.
Philadelphia	1893	Cholera	Lazaretto reactivated in Delaware River.
Savannah	1893	Yellow Fever	All mail disinfected.
Jessup, Ga.	1893	Yellow Fever	Cordon placed around town-all mail disinfected.
Honolulu	1895	Cholera	Ship mail fumigated.
New York	1897	Smallpox	Mail from India fumigated.
Castle Hill, Maine	1897	Diphtheria	Carbolic acid treatment of mail.
San Francisco	1897	Plague	Mail from Orient fumigated—Angel Island.
Siboner, Cuba	1898	Yellow Fever	Mail to Jacksonville punctured and fumigated.
Havana	1898	Yellow Fever	All mail from Havana to U.S. fumigated.
Oklahoma Territory	1898	Smallpox	Mail disinfected with formaldehyde gas.
Waycross, Ga.	1898	Yellow Fever	All mail fumigated in boxcars.
Hancock County Fla.	1898	Yellow Fever	Disinfection of mail and newspapers.

WHERE	*WHEN*	*WHY*	*WHAT WAS DONE*
Baltimore, Md.	1898	Smallpox Measles	All ships quarantined and disinfected.
Franklin, Louisiana	1898	Yellow Fever	Cordon around town with disinfections?
Port Townsend, Wash.	1898	Plague	A mail disinfector was acquired.
William Head, Brit. Col.	1898	Plague	Disinfection of ships and cargo from Orient.
Milan, Tennessee	1898	Yellow Fever	Packages of money in mail fumigated.
Biggsville, Illinois	1898	Smallpox	Fumigated mail by direction of Postmaster.
Santiago, Cuba	1899	Yellow Fever	People and goods were disinfected on a boat.
Memphis	1899	Yellow Fever	All mail disinfected during summer.
New Orleans	1899	Yellow Fever	All mail disinfected during summer.
Vicksburg	1899	Yellow Fever	All mail disinfected during summer.
Shreveport	1899	Yellow Fever	All mail disinfected during summer.
Steamer Jamestown Hampton, Va.	1899	Yellow Fever	All letters perforated and disinfected.
Montgomery, Alabama	1899	Yellow Fever	All mail fumigated from Florida.
Havana	Sept. 1899	Yellow Fever	Mail from Havana for Southern states decontaminated.
Molokai, Hawaii	1900	Leprosy	All mail from island disinfected.
Washington, D.C.	1900	Smallpox	Mail ordered disinfected by Postmaster.
Monticello & Maine	1901	Smallpox	Disinfect letters from New Brunswick.
Philadelphia General Hospital	1900-1916	All contagious diseases	25,000 letters per year disinfected.
Manila, P.I.	1901	Smallpox Plague	Mail leaving for U.S. ports disinfected.
San Francisco	1901	Smallpox	Formalin put into mail sack. Letters punctured.
Manila, P.I.	1901	Smallpox Plague	Mail from Hong Kong disinfected.

WHERE	*WHEN*	*WHY*	*WHAT WAS DONE*
San Francisco	1902-02	Plague	Cordon around Chinatown. Holes punctured in letters and fumigated.
El Paso	1901-02	Yellow Fever	Quarantine on Mexican border—mail disinfected.
Eagle Pass, Texas	1902	Yellow Fever	Quarantine and disinfection Mexican border.
Presque Isle, Maine	1902-03	Smallpox	Cordon against Canadian lumber camps—mail disinfected.
Greenville, Michigan	1901-07	Smallpox	Formaldehyde disinfection of mail.
Norwalk, Ohio	1902	Smallpox	Mail perforated—fumigated with formaldehyde.
Laredo, Texas	1903	Yellow Fever	All Mexican mail fumigated with formaldehyde.
San Antonio	1903	Yellow Fever	Quarantine—all mail disinfected.
U.S.S. Ohio quarantine in Delaware Harbor	1903	Smallpox	Sulphur fumigation of mail.
Philadelphia	1903	Smallpox	Wilkes Barre letter marked "disinfected."
Washington, D.C.	1903	Smallpox Yellow Fever	P.O. Dept. Regulation: "The mail—shall be properly fumigated."
Cumberland, Maine	1904	Scarlet Fever	Disinfected mail from scarlet fever houses.
Penikese Island, Maine	1905-10	Leprosy	Lister's fumigation of mail.
North Adams, Maine	1907	Smallpox	All mail disinfected.
Philadelphia	1908	Smallpox	Letter to Tioga, Pa., disinfected.
Ozarks Towns, Mo.	1918	Influenza	All incoming mail put in cooking stoves.
Portsmouth, Va.	1920	Mumps	Letters marked "sterilized."
Springfield TB Sanitarium	until 1941	Tuberculosis	Mail from patients exposed to ultraviolet light.
Hawaii Leprosarium	until 1968	Leprosy	Electric bake oven used to sterilize mail.
Carville, Louisiana USPHS Hospital	until 1968	Leprosy	Electric bake oven was used to sterilize mail.

MEDICO-HISTORICAL NEWS AND ACTIVITIES

CORRESPONDENCE AND REPORTS

APPOINTMENTS IN THE HISTORY OF MEDICINE

Arnold Ravin

University of Chicago

Professor Arnold W. Ravin has been appointed Director of the Morris Fishbein Center for the Study of the History of Science and Medicine at the University of Chicago. Professor Ravin is Addie Clark Harding Professor of Biology and Its Conceptual Foundations and Professor of Microbiology. He obtained his B.S. from the College of the City of New York (1942) and his M.A. (1948) and Ph.D. (1951) from Columbia University. He was Professor of Biology at the University of Rochester before moving to Chicago in 1968. He has been the recipient of many awards, fellowships and grants. He has numerous publications in genetics and microbiology and in recent years has published in the history of genetics.

WILLIAM FREDERICK NORWOOD FESTSCHRIFT

On the evening of January 19 friends and colleagues of William Frederick Norwood met at the Reflections Restaurant in Glendale, California, for a surprise dinner to honor the 75-year-old Loma Linda University medical historian with the presentation of a festschrift: *The Education of American Physicians: Historical Essays*. The book, edited by Ronald L. Numbers and published by the University of California Press, features historical surveys of the teaching of the various medical-school disciplines and thus complements Norwood's classic institutional

William Frederick Norwood

study, *Medical Education in the United States before the Civil War* (1944). Lloyd G. Stevenson, Martin Kaufman, John B. Blake, John Harley Warner, James Whorton, David L. Cowen, Russell C. Maulitz, Edward C. Atwater, Gert H. Brieger, Lawrence D. Longo, Jeanne L. Brand, Judith Walzer Leavitt, Chester R. Burns, and Genevieve Miller all contributed to the volume. Following tributes from Walter E. Macpherson and Ray Allen Billington, the editor read the book's dedication: "This collection of essays . . . honors a man who chose never to teach at one of the nation's great universities, who never directed a doctoral dissertation, yet who won the love and respect of all who knew him. It is a monument to a wonderful white-haired gentleman who pioneered in the writing of American medical history, who persevered in the teaching of the history of medicine, and who enriched the lives of countless students and friends."

DORIS APPEL AND THE BOSTON UNIVERSITY SCHOOL OF MEDICINE

On January, 1980, Boston University School of Medicine was the happy recipient of two sculptured panels by Doris Appel on the History of American Medicine. These panels had been at the Boston Museum of Science, and on their arrival at Boston University School of Medicine, they join the Bernard Appel Hall of Medicine which was placed at Boston University School of Medicine in 1976. The Hall of Medicine consists of twelve massive stone plaques representing the "greats" in the History of Medicine from Imhotep to Madame Curie. The hall was named for Bernard Appel, M.D., who was Assistant Dermatologist at Massachusetts Memorial Hospital (now University Hospital) from 1925-1932, was Physician-in-chief in Dermatology at the Boston City Hospital from 1952-1961, and was Chief of Dermatology at Lynn Hospital from 1936-1961, as well as serving as consultant to many other hospitals. The sculptured panels on American

Doris Appel

Medicine trace the development of American Medicine from the landing of the Mayflower in 1620 through variolation, introduction of ether, development of surgery, and the founding of medical schools in the United States—twenty-six figures are depicted.

Doris Appel has donated her History of Medicine library, rich in Association copies, some letters and memorabilia to the Boston University School of Medicine Library; the History of Medicine Room has been named the Doris Appel History of Medicine Room. Formal dedication of the Room and the panels on the history of American medicine is scheduled for April 30, 1980. Doris Appel plans to attend.

Doris Leavitt Appel was born June 4, 1904, on Beacon Hill in Boston. She was graduated from Salem State College and became a student of Boston University School of Art and an alumnus of the School of the Art Museum in Boston. She married Bernard Appel, a Boston physician, in 1926, and they had three daughters, Lorna, Nancy, and Blossom. Dr. Appel encouraged and supported his wife's developing interest in the field of medical history and its interpretation through sculpture. Dr. Sigerist sponsored her for membership in the American Association for the History of Medicine in 1942 and she has been a member since that time.

Her smaller panels and sculptures have been placed in institutions all over the world, but her major work, the Hall of Medicine, was housed in the Medical Museum of the Armed Forces Institute of Pathology from 1962-1970; it was installed at Boston University School of Medicine in June, 1976. Her panel on American medicine was placed in the Boston Museum of Science in 1974.

Boston University School of Medicine feels very fortunate to have both of Doris Appel's major sculptured works as well as a series of portrait plaques now mounted in the library, and her fine history of medicine reference library. After their travels, it is good to have them all together at Boston University School of Medicine.

George E. Gifford, Jr.

ANNOUNCEMENTS

NATIONAL NEWS

TEACHING THE HISTORY OF MEDICINE IN A MEDICAL CENTER

On Tuesday, 14 October 1980, a meeting devoted to this theme and presented by the Josiah Macy, Jr., Foundation and the Johns Hopkins Institute of the History of Medicine will be held in Baltimore. Taking part in the program will be scholars from San Francisco, Madison, Galveston, Baltimore, Kansas City, Philadelphia, Washington, Stony Brook, New Haven, Boston, Durham, Toronto, and Rochester, N.Y. For further information contact the Institute of the History of Medicine, 1900 E. Monument Street, Baltimore, MD 21205.

History of Dermatology Award

The History of Dermatology Club of the American Academy of Dermatology announces the Samuel J. Zakon Award in the History of Dermatology. This prize will be awarded to the dermatologist in training who submits the best essay on a subject related to the history of dermatology. All papers should be submitted to Lawrence Charles Parish, M.D., President, History of Dermatology Club, 1601 Walnut Street, Philadelphia, PA 19102 by 15 October, 1980. The winner will receive his or her award at the History of Dermatology Club's Annual Meeting in December, 1980. This award was created by Mrs. Samuel J. Zakon, in memory of her husband, who was a noted historian of dermatology and the first historian of the American Academy of Dermatology.

History of Science Society

The XVIth International Congress of the History of Science will be held 26 August-3 September, 1981 in Bucharest, Romania. The general theme of the Congress will be "Science and Technology: Humanism and Progress." For information on the presentation of papers, registration, and accommodation write to Congress Secretary, Academy of the Socialist Republic of Romania, XVIth International Congress of the History of Science, 71102, Calea Victoriei 125, Bucharest, Romania.

Joint Atlantic Seminar

The Joint Atlantic Seminar in the History of Biology and Medicine will be held at Yale University, New Haven, Connecticut, on April 18-19, 1980.

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Medical Education Guide

An information guide to the development of medical education in the United States is being published by Gale Research Co., Detroit, Michigan 48226. Entitled *Medical Education in the United States: A Guide to Information Sources* (xx + 393 pp. $26.00) it is compiled and edited by Francesco Cordasco and David N. Alloway. The guide includes a facsimile reproduction of the *Classified Catalog of Medical and Surgical Publications* issued in 1877 by Henry C. Lea of Philadelphia.

PROGRAMS OF MEETINGS

Johns Hopkins Medical History Club, Baltimore, Maryland

January 28, 1980: "The Pavlovian Tradition," W. Horsley Gantt.
February 11, 1980: "Adolf Meyer in Retrospect," Jerome D. Frank

Society of Medical History of Chicago

February 27, 1980: Tribute meeting in memory of Walter L. Necker, "Medicine and Books at the University of Chicago: Some Notable Collections," Robert Rosenthal.

University of Virginia Medical History Society, Charlottesville

February 19, 1980: " 'The Invisible Malady': Sickle Cell Anemia in America," Todd L. Savitt.

Washington Society for the History of Medicine, Washington, D.C.

January 24, 1980: "John Abel and the Early Development of American Pharmacology," John Parascandola; "Some History of Hospitals: 13th to 20th Centuries; Their Architecture, Their Art and How They Worked," Grace Goldin.

NEWS FROM ABROAD

Canada

The journal *Historical Reflections/Réflexions Historiques*, produced by the Department of History of the University of Waterloo, Ontario, announces the preparation of a special number with the theme "the medicalization of western society from about 1750 to about 1830," under the direction of Jean-Pierre Goubert. Although the majority of submissions so far received are on France, the volume will include a comparative section on medical discourse, the professional standing and social position of medical practitioners and practices, and the ways in which the spread of modern medicine took place and forms of resistance to that spread in Europe and North America. Historians specializing in the subject who would like more information or who would like to contribute should contact Monsieur Jean-Pierre Goubert, Centre de Recherches Historiques, Ecole des Hautes Etudes en Sciences Sociales, 54 Boulevard Raspail, 75006 Paris, France.

England

An International Symposium on the Influence of Nutrition upon Naval and Maritime History, organized by the Naval Maritime Museum, Greenwich, with the assistance of the Wellcome Institute for the History of Medicine is to be held on 16-18 April, 1980, at the Museum. The program lists the following papers: "Energy Requirements in Health," J. V. G. A. Durnin; "Victualling of the Fleet in the 18th and 19th Centuries," C. C. Lloyd; "Vitamin Requirements of the Human Body," I. M. Sharman; "200 years of the Sailor's Diet," G. Milton-Thompson; "Clinical Manifestations of Vitamin Deficiencies," G. Taylor; "Health Aspects of 18th Century British Pacific Voyages," Sir James Watt; "18th Century French Voyages of Discovery: General Problems of Nutrition," A. Carré; "Health and Navigation in the South Seas: The Spanish Experience," J. de Zulueta; "The History and Implications of Processed Food," A. E. Bender; "Hypothermia," W. R. Keatinge; "19th Century Polar Voyages"; "Scott's Last Expedition," G. Hattersley-Smith; "Nutritional Deficiencies in the Crews of German Raiders in Two World Wars," S. Schadewaldt; "Neurological Factors in Decision Making," W. Gooddy.

University of Toronto

The Faculty of Medicine, the Institute for the History and Philosophy of Science and Technology, and the Pontifical Institute of the University of Toronto sponsored two lectures, November 22-23, 1979, by Jerry Stannard, Professor of the History of Science and Medicine at the University of Kansas. The lectures were entitled "Late Mediaeval Rezeptliteratur" and "Prescholastic Biology and Medicine."

FELLOWSHIP OPPORTUNITY

The Hannah Institute for the History of Medicine invites applications for the post of Visiting Professor for one term (either but not both) during the academic year 1981-82. Candidates must hold a doctorate and have teaching experience at the university level. Stipend levels are on a salary replacement basis or as negotiated with the Institute. Deadline for application September 30, 1980. For further information contact T. Gelfand, Program History of Medicine, Faculty of Health Sciences, University of Ottawa, Ottawa, Canada. K1N 9A9.

BOOK REVIEWS

A Stereoscopic Review: Since the authors and editors of the three books dealt with here are probably sufficiently sceptical of modern medicine to value a second opinion in diagnosis or in the recommendation of therapy, they (and their reviewer) ought to welcome a second opinion in book reviewing. The second opinion comes after the initial review below.

E. RICHARD BROWN. *Rockefeller Medicine Men: Medicine and Capitalism in America*. Berkeley: University of California Press, 1979. xii + 283 pp. $12.95.

JUDITH W. LEAVITT AND RONALD L. NUMBERS (Editors). *Sickness and Health in America: Readings in the History of Medicine and Public Health*. Madison: University of Wisconsin Press, 1978. ix + 454 pp. $20.00 (cloth); $8.95 (paperbound).

SUSAN REVERBY AND DAVID ROSNER (Editors). *Health Care in America: Essays in Social History*. Philadelphia: Temple University Press, 1979. 279 pp. $15.00 (cloth); $6.95 (paperbound).

The history of medicine, as a discipline, has largely existed outside the mainstream of intellectual developments occurring in history, as a discipline. Indeed, it has always seemed more important for historians of medicine to know medicine rather than history. What happens, then, when social historians decide to investigate the history of medicine on their own, working for the most part outside the disciplinary structures of the field. To some extent the results are apparent in the three books under review. The results can be summed up rather briefly, although their importance is not related to the brevity of the summation: 1) medicine, physicians and institutions are seen in less dominant roles than is traditional in the history of medicine; 2) the effects of other factors and dynamics of society are used as critical explanatory variables for the development of medicine and the medical profession; 3) the history of medicine is viewed as a small branch of the larger field of social history. These reasons alone constitute a serious intellectual challenge to the mainstream of the discipline.

The history of medicine has largely been written by physicians for other physicians. It has been a study in the nature of medical progress and the ongoing accumulation of knowledge from the dismal past to the present and of the various medical individuals and medical institutions through which those changes occurred. As such, the history was abstracted from the social context in which it occurred since the important point was not so much how or why things happened, but that they did happen. Most medical history is therefore positivist and chronological but ahistorical and asocial. When medical history is removed from its self-imposed isolation, when it is seen as a part and parcel of the social relations of a society, then it loses much of its esoteric nature. The papers in the two edited collections as well as the monograph under review all attempt to look at various aspects of medicine and medical history from a fundamentally different epistemological perspective than is traditionally used. The authors have not created a new field, rather they have built upon a tradition in the history of medicine that has long existed but never held center stage. As the Reverby and Rosner book explicitly points out, this new work would be impossible without the prior contributions of Sigerist, Rosen, Rosenberg, Ackerknecht, Shryock, Stern and others. The facts that constitute the social history of medicine are for the most part different facts than those that are the basis for the classical history of medicine. The object of investigation is not to learn about the progress of medical knowledge but rather to use the evolution of medicine as a means of studying the development of society. Since the object and focus of study are so drastically altered, it is not surprising to find little mention of individual physicians or techniques and much discussion of patients and populations in these new works.

Medical historians have also tended to shy away from seeing medicine in overtly political terms. The asocial classical history of medicine would consider politics and economics tangential to the subject under study. Even those historians of medicine whose personal political outlook was left-wing have tended to avoid carrying this into their professional domain and write standard medical history. It is illuminating, on this point, to note that Henry Sigerist, perhaps the prime example in recent times of a politically activist historian of medicine, saved his radicalism for his work on contemporary medical events (the Soviet national health service, for example) and his history of medicine work is now viewed as conservative. (See Ronald Frankenberg, "Functionalism and after," *Int. J. Hlth. Serv.*, 1974, *4:* 415-416.) The most noticeable characteristic of the social as opposed to the classical history of medicine has been its attempt to link up the practice and development of medicine with larger political, economic and social events. In doing this it tends to eschew individual and institutional histories; it tends to ignore the asocial history of clinical symptoms (although Karl Figlio's "Chlorosis and chronic disease in 19th century Britain: the social constitution of somatic illness in a capitalist society," *Social History*, 1978, *3:* 167-197, is a brilliant exception); and it tends to look less at what physicians and medical statespeople have said about what medicine has done and more at how medicine actually affected people and society, and how people and society have affected medicine.

The third factor that makes these books so novel is the increasing popular interest in medicine and health care. Until the mid-1960s medicine rode upon a crest of public enthusiasm and was highly valued in the public's estimation. The development of antibiotics, open-heart surgery, polio vaccine, fluoridation, chemo- and radiation therapy, to name but a few of the more significant highlights of this century, created an aura of infallibility that could not be maintained. The federally-assisted increase in access to medical care through Medicare and Medicaid was a precipitating factor in a health sector inflation that has continued and become exacerbated in recent years. This cost increase, particularly in a time of decline in the domestic economy, has led to a questioning of the ability of medicine to perform all that it at one time gave promise of doing. The efficacy and safety of medicine have been brought under scrutiny and found wanting; the actual contribution of medicine to declines in mortality and morbidity has similarly been challenged; it has become clear that medicine cannot be equated with health. In attempting to understand what has happened to medicine, people have looked to the history of medicine, as a field, to provide answers but their absence, due to lack of interest in the questions, has prompted social historians and health scholars to rush in to fill the gap. Thus the burgeoning number of volumes on the social history of medicine can be seen, in part, as a response to and an explanation of some of these issues.

It is from this perspective that these books must be viewed. Two of them are readers, and the third is a monograph of striking originality.

The Leavitt and Numbers volume takes its cue from the current understanding that health transcends medicine. By attempting to broaden the history of medicine it has come close to being a social history. Although this volume is the nearest to traditional history of medicine of the three, as can be judged by the fact that over two-thirds of the articles are reprinted from history of medicine journals, these articles nevertheless represent the fringe rather than the mainstream. The work typologizes the field into medical practice and institutions (including theory, practice, therapeutics, education, image and income, institutions and allied professions) and public health and personal hygiene (including epidemics, sanitation, hygiene, reform and politics). The book contains a highly useful bibliography which makes it particularly useful for classroom adoption. In addition, a large number of the essays are written by well known and established writers in the field. It is unfortunate that the volume does not adequately deal with issues and events past the turn of the century, reflecting perhaps the bias of the discipline. One is given the impression that though the history of medicine is a broad field it has little current relevance. This is all the more peculiar because, in their introductory essay, Leavitt and Numbers are constantly referring to medical and health problems of the present. The usefulness of the volume, and it is an extremely good collection, is thus compromised by its limited historical overview.

The Reverby and Rosner volume begins with a brief but brilliant introduction that seeks to explain the limitations of classical history of medicine. The editors trace the historiography of medical history up to the present in an original and insightful way. As the essays in the book tend to be explicitly political, feminist, or consumerist (or all three), they will seem both provocative and infuriating to people used to the standard history of medicine. The authors tend to be younger and less well-known professionally than those of the Leavitt and Numbers book and perhaps correspondingly only one of the essays included in this volume has appeared in a history of medicine journal. One half of the essays concern themselves with events occurring during the Progressive Era in the U.S. thus placing the development of scientific medicine squarely within the context of the political and economic changes occurring in the rest of society. The most interesting novelty of the book, though, is the fact that the last two essays concern themselves with recent events—a study of the growth of a hospital labor union in the late 1950s and an extremely topical piece discussing the ideological ramifications of the cost of health care crisis in the U.S. The importance of these articles, over and above their content, is that they provide a sense of continuity for the social history of medicine and demonstrate that historical scholarship does not end with the last century.

The events surrounding the development of scientific medicine and medical education in the period just before and after the Flexner report of 1910 have certainly been studied and overstudied by medical historians. It is to the inestimable credit of Brown that he is able to cover much of the same territory and yet reinterpret it in a totally original manner. Most historians of the Flexner Period see Flexner as an original genius, acting alone to reform medicine from the outside. Few actually look at the manner in which reform was achieved and fewer still do more than note the fact that philanthropic foundations supported and funded the reforms. This does not imply an economic determinism, but rather a more revealing picture of the larger dynamics that affected medicine in this period. By looking into the sources of funding for scientific medicine—the philanthropic foundations led by the Rockefellers and Carnegies—rather than at the institutions and physicians associated with the movement, Brown is able to establish firmly that the changes did not just come about because of the natural progression of science and the march of knowledge but were guided and directed by the needs of the social system as determined by the philanthropists. By placing these events in a cogent social framework not only do the changes in medical education and medical practice take on an added significance but new light is shed on the dynamics of the progressive era as well. Brown sets an ambitious goal in this book, and succeeds in raising as many questions as he is able to answer. He has set the terms for future scholarship for years to come, and this alone signifies the importance of this book. Nevertheless problems remain. Brown's use of an instrumentalist-functionalist methodology describes for us the before and after period of the transition from allopathy to scientific medicine, but the methodology is incapable of revealing much about the actual process of the transition. Perhaps only a Foucaultian methodology is capable of adequately addressing such conjunctural points. A weaker part of the book is the concluding chapter in which Brown tries to bring the developments of the progressive era up to date. The role of foundations, so crucial to the earlier chapters, is all but forgotten, and the space allotted to the chapter is far too limited to allow its goals to be accomplished. Nevertheless, the connections between the earlier period and the current problems are developed and this alone should make scholars pause to take note of what Brown has achieved.

These three books all come as welcome additions to the field. All are suitable for classroom use (the readers are available in paper editions). If they serve to stimulate interest in the integration of medical history into general social history then they will be well worth their price.

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A Second Opinion: In a recent number of the *Bulletin of the History of Medicine* the lead-off essay, by Alexander G. Bearn and Elizabeth D. Miller, was entitled "Archibald Garrod and the Development of the Concept of Inborn Errors of

Metabolism." An important concept, of course, but one not here revealed as having had important social determinants; neither are the social consequences adequately expounded; worst of all, the story is told as if it had been in considerable part the story of Dr. Archibald Garrod. Perhaps it will presently be demonstrated that Dr. Garrod, like every other "important" doctor or scientist, was actually no more than a bit of flotsam on a great economic or social current, whirling him toward ends undreamed of. Somebody ought to speak to the editor of the *Bulletin* and to Dr. Bearn. The same authority might have a word with the deluded committee which awards Nobel Prizes.

Away, says Berliner in effect in the above review, with the "Great doctors," those naively recommended by Sir William Osler as career models for medical students and young physicians. Dr. Berliner is one of the many (some of them M.D.s) who are apparently convinced that the fifty-year-old *Introduction to the History of Medicine* by Fielding H. Garrison, is even yet regarded by somebody (who can it be?) as the holy writ of medical historians. There is, of course, a new testament by Henry E. Sigerist, called the *Great Doctors,* a book which is particularly derided by those who have not read it or who have failed to go beyond it (Reverby and Rosner want us to go "Beyond Great Doctors") even so far as Sigerist's *Civilization and Disease.* Berliner, Reverby and Rosner, joined by Leavitt and Numbers, will protest, I think, that they were not aiming at Sigerist but merely at the idea of history being determined in any fundamental way by great men, or even by great women.[1] This is a message which comes to us periodically in the Institute in Baltimore, where no candles burn before the images, or have ever done, and which is conveyed to the general public, lay and medical, at frequent intervals. No day seems to pass without it. In the above review another Daniel comes to judgment. In various guises, and coming from different centers of light and learning, some such Daniel appears on the doorstep so often that we now look up to say, "Hi, Dan!" and go back to work.

Oddly enough, one of the two readers reviewed above (Leavitt and Numbers) is forty-percent composed of essays from the *Bulletin.* It contains a generous supply of illustrations and not a single portrait. No shrines. (Garrison's book, of course, has nothing but portraits.) The index is in this respect refreshing. It includes a worthy named Morton, for example, but it seems that he was neither great nor notorious. Samuel G. Morton is not there. W. T. G. Morton is not there. (If in doubt about these two celebrities, or one-time celebrities, consult Garrison.) And this is probably a good sign. History is much more than a beadchain of great accomplishments. The beadchain, like the incense, can now, say the prophets, be discarded. The total omission of W. T. G. Morton (as well as of Horace Wells and Crawford Long) we can forgive. No shrines, no candles, no Oslerian sentiment for us. But no anesthesia? This we find excruciating. No Marion Sims? No Ephraim McDowell? Very well, we shall have to do without them. But no gynecology? We protest, Dr. Leavitt, that not all gynecological surgery was (or is) evidence of male villainy, and if it were should the fact be suppressed? (In a *Bulletin* that was too late to be considered, there appeared a splendid essay on Battey's operation. It might have served.) No Valentine Mott? If it must be it must. But no, or little, surgery? Even surgery, or especially surgery and more especially gynecological surgery, has had social aspects, social concomitants. Why are all these things excluded? No William Beaumont? Very well: we shall make shift to do without him. But no science whatever? Can this be American medicine?

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[1] Henry Sigerist is in fact quoted in the first paragraph of the Reverby-Rosner book, declaring nearly fifty years ago that the history of medicine "is infinitely more than the history of great doctors and their books." Nobody, they seem to think, was listening, because we are told that "this dictum is now even more relevant." The book they are introducing has been awaited, one must conclude, this half century. Several pages are devoted to the Johns Hopkins Institute, and Sigerist is pictured as reaching the peak of his career in historical-political activity there, his early Leipzig intellectualism left behind, his later dedication to writing history in his Swiss retirement not yet reached "While Sigerist and his students produced some of the most important work in the history of medicine, they did not represent the dominant approach. The history of medicine remained primarily intellectual history. In addition, both the prevailing political conservatism and the lack of institutional support served to isolate those who were writing left social history " The dominant approach should not be difficult to document. Where, then, did the dominant intellectual history appear? Who was writing it? And who were the left social historians of medicine who were cringing in cellars? The three sentences in quote marks should have been thoroughly footnoted. Intellectual history—Temkin's, Edelstein's and others'—has in truth been among the chief distinctions of the Institute and not its counterpoise. Readers should not be left with the impression that the Sigerist circle was altogether made up of social historians.

But we are unfair to the L. and N. anthology. It makes no subtitle claim to be pure social history. (It contains four essays by Charles Rosenberg, but Rosenberg has been known to admit science as well as social science to scrutiny.) Reverby and Rosner, however, have gathered up in their *Health Care in America: Essays in Social History* such medical historians as will not be expected to be science-oriented or even practice-oriented: theirs are social history essays altogether. That they get no closer to anesthesia than Twilight Sleep need not, then, surprise us. Are we beginning to approach what Leonard Wilson has designated medical history without medicine?[2] Without science?[3] In "Thoughts on the Historical Perspective" in the *New Yorker* for Jan. 21, 1980, Calvin Trillin, reporting the A.H.A. meeting a month earlier, remarked that in the last decade an increasing number of historians have specialized in what is known as the New Social History—what one historian at the meeting described as "the recovery of the story of those who have not left their marks, as Caesar has." The Leavitt-Numbers introductory Overview, like the book which it opens, overlooks a lot, although what it supplies is sophisticated and interesting. It begins (not a moment to be lost) with the sage caveat, "The history of health care in America is much more than the accomplishments of a few prominent physicians." On this ground, the medical and surgical accomplishments of medical men (the Caesars?) are largely (except for sanitation and vaccination) ignored. This, incidentally, demonstrates what careful Wisconsin selection can achieve, but at the same time it must be admitted that medical history of the "internal" kind is not now very plentiful, even in the *Bulletin;* physicians intimidated by the "professionals" should remember that two quite distinct professions are involved and should consider taking action. To put a part of technical, professional medicine back in American medical history, the student (at any rate the medical student and the doctor) should also read another anthology, edited by Gert H. Brieger, *Medical America in the Nineteenth Century: Readings from the Literature,* Johns Hopkins University Press, Baltimore, 1972, or should even consider it as the alternative to either of the new readers of social history, both of them so-so only, if "professional" interest is a paramount consideration.

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[2] Professor Leonard G Wilson has published an editorial, "Medical History Without Medicine," in the *Journal of the History of Medicine and Allied Sciences*, Jan , 1980, *35* 5-7.

[3] Professor Charles C. Gillispie, Sarton Lecturer, told the recent meeting of the A.A.A.S. about over-emphasis on social history of science. Cf. William J Broad, "History of Science Losing Its Science," *Science*, 25 Jan. 1980, 389.

Of Brown's *Rockefeller Medicine Men* we ought to sample a short quotation: "The full-time plan was an entering wedge, the first thrust of a continuing struggle by corporate philanthropy to control medical education and medical care—to establish the principle that society's needs, as defined by the corporate class, would prevail over the medical profession's interests . . . doctors subordinated to the university, the university controlled by men and women of wealth, and academic physicians researching the causes of disease and eliminating those causes at their microbiological source. All these relationships and functions would assure that academic doctors, unlike their practitioner colleagues, would serve the needs set before them and not some competing professional interest."

As we learn from Dr. Brown, the full-time provision in Rockefeller contracts with universities was essentially eliminated in 1925; the Foundation changed its tactics but not, Brown insists, its strategy. But what was the "competing professional interest," apart from making money? Doctors did, and do, make money: this we are never permitted to doubt. Somehow, none the less, unconstrained private practice was better than doctors "serving the needs set before them," research into the microbiological causes of disease. Elimination of competition and the consequent triumph of "unsectarian medicine" was, of course, a major interest, strongly advocated by Gates and by John D. Junior. It having been demonstrated, however, by René Dubos, Marc Lalonde, Thomas McKeown and others that medicine has had in the past only a comparatively small part in the reduction of morbidity and mortality, it is now to be seen as expensive and ineffective technology. Recognition of vastly important environmental factors in disease causation seems, to Brown, to have made nearly everything since Chadwick's reforms little more than their elaboration and refinement, and in a sense this is partly true: "dirt" has been replaced by "pollution." That medical science, as developed over the past century, has been the consequence, chiefly, of a sort of capitalist plot, and that "society's needs, as defined by the corporate class" have been made to prevail over the private medical profession's interests is part (in some ways a curious part) of the conclusion. Frederick Gates was the quintessential capitalist and William H. Welch was his medical counterpart. They were as thick as thieves. Welch served both Johns Hopkins and the Rockefellers but he cannot be said to have worked both sides of the fence: there wasn't any fence.

This is not the whole story but it is characteristic of Brown's work. A. L. Cochrane, Rick J. Carlson, Howard B. Waitzkin and Barbara Waterman, along with John Ehrenreich, David Mechanic and Vicente Navarro have been Brown's precursors, and not least, of course, has been Ivan Illich. The list grows long, and a great deal of what is being said cannot be brushed away. The "striking originality" of *Rockefeller Medicine Men* consists very largely in saying with eloquence and force what has been said before but saying it from within the stockade. Rockefeller Archives and Carnegie Foundation files have been worked over for telling quotations. Capitalists have been overheard (half a century and more after the event) talking like capitalists.

The tragic early death of John Knowles deprives us of what would have been (despite and because of his Foundation presidency) cool and very knowledgeable comment: he would no doubt have declined to do an essay for one of the leading reviews and he might even have kept silent initially, but he would have been heard sooner or later nevertheless. Some of Brown's assertions, or interpretations, are being questioned even in the absence of Knowles. Has much of the investment in research been misdirected? Brown thinks so. Has there been any essential change in national policy since government took over from the foundations the major funding of research? Brown thinks not. This is the kind of presentism, not to speak of polemicism, which permeates his book. It will not, of course, be so controversial as Ivan Illich's *Medical Nemesis*. But it reflects its environment, one of scepticism, and because of the flags it proudly hoists it will be looked at narrowly. It is all the same a competent job (at times a competent hatchet job) and whether or not it is history is not, perhaps, the most important question. An attempt at a disinterested approach would have been interesting. It would have been hard to maintain. Brown has not cared to try. He has written an extended tract.

In 1979 the University of Wisconsin Press earned the gratitude of all who are interested in medical history by reissuing, in paperback, Richard Harrison Shryock's *The Development of Modern Medicine: An Interpretation of the Social and Scientific Factors Involved,* which is the work of an American social historian but is neither all-American (it is in fact a general history) nor all social; as the subtitle indicates, it seeks to interpret both social and scientific factors. This book was copyrighted, in its first edition, more than forty years ago.

Long before Professor Temkin wrote the words in 1977 (in a comment on the "Oslerian method" of teaching medical history) he had demonstrated how "formal courses must justify themselves by presenting medicine as developing within cultural, intellectual and social surroundings."[4] When Sigerist and Temkin and Ackerknecht started a quiet revolution in medical history in Leipzig more than fifty years ago, the manuscript detectives and textual critics were not pushed aside, but their work was supplemented (and employed) in broader studies, establishing, so far as possible, the historical context of medicine, its cultural and social surround. This orientation has not been abandoned. To assert that in 1980 "most medical history is . . . positivist and chronological but ahistorical and asocial" is to display a quite astonishing disregard of its literature and historiography. And yet the statement would have been applicable to the American scene in the thirties, at least in the early (pre-Shryock) thirties: it is merely, and badly, dated.

"Not so long ago," writes Temkin, who is approaching seventy-eight, "the history of medicine and the history of science were conceived as a march of progress culminating in the present state of superior medical and scientific knowledge. Such historiography is now under frequent attack, corresponding, I think, to the self-questioning medicine and science have undergone since World War II." And as one of the chief members of the (not altogether novel) social-history fraternity remarked the other day, "I am not nearly so anti-medical as some of the others!" Garrison, of course, was pro-medical; but to be anti-Garrison, or rather to qualify in some degree one's admiration and gratitude, one does not have to be anti-medical.

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[4] The words ascribed to Professor Temkin in this review will be found in the Introduction to *The Double Face of Janus and Other Essays in the History of Medicine* (Baltimore: Johns Hopkins University Press, 1977)

It is good to see that one of Temkin's pupils, Dr. Gert H. Brieger, who is Professor at U.C.S.F., is represented, with his long-time hero, Stephen Smith of New York, in one of the anthologies under review. (From the point of view of a social or societal Daniel-come-to-judgment, it can be said of public-health man Smith, a reformer who happened also to be a surgeon, that at least he was not guilty of discovering anything.) Gert Brieger is also the editor of two anthologies of his own (one of them already mentioned)—*Medical America in the Nineteenth Century* (1972) and *Theory and Practice in American Medicine: Historical Studies from the Journal of the History of Medicine and Allied Sciences* (1976). Their tone is considerably different from that of the two comparable books here reviewed, and that is particularly true of the earlier *Medical America,* which is a book not of historians' essays but of the writings of American medical pioneers and innovators, in science and in service; there are even a few real discoverers; there are (one hesitates to reveal it) some great men. Brieger has also introduced for Johnson Reprint *Mechnikov's Immunity in Infective Diseases* (1968). But it is not too late. Dr. Brieger is still a comparatively young man. Suppose that a group of earnest social historians were to take him aside, even take him to dinner, an honest-to-goodness Daniel playing host; suppose that they were to *talk* to him, seriously and successively, and all together. Is there not hope that they could bring him to a better way of life and of scholarship? If this is not done—resulting, one might hope, in the setting up of a G.M.A.A. (Great Men Admirers Anonymous)—there is surely a real danger that Dr. Brieger will fall into the pattern of Fielding H. Garrison.

But a somewhat facetious paragraph should not be the last. The importance of being earnest has to be recognized. Brown is a serious scholar and the theme of "Medicine and Capitalism in America" deserves more serious consideration than either the review or the second opinion has given it. It is also a more serious problem than Brown himself has been willing to recognize: his simplistic solution—that biological science in the U.S.A. has been a capitalist plot—might be seen as off-the-left-hand, this in spite of his earnest research. What do these three books really have in common? Their striking differences do not conceal their likeness. What matters to author and editors is external history only—the alleged effect, in the one case, of raw capitalism and in the two anthologies of a variety of social and political factors. It would not be fair to Reverby and Rosner, or to the authors they have chosen, to say that "intellectual" is to them a pejorative term or that they exhibit what Richard Hofstadter called the unpopularity of intellect. They simply find medicine, except as a social phenomenon, un-interesting and unimportant. I regret to say that this also seems to be true, to a large extent, of Leavitt and Numbers. There is no reason, of course, why this should not be so. It is simply a restriction of view which must be pointed out to readers of the *Bulletin* and to the medical community.

LLOYD G. STEVENSON

JEROME J. BYLEBYL (EDITOR). *William Harvey and His Age: The Professional and Social Context of the Discovery of the Circulation.* Baltimore, MD: The Johns Hopkins University Press, 1979. (The Henry E. Sigerist Supplements to the *Bulletin of the History of Medicine,* New Series, no. 2). xii + 154 pp. $12.50.

The year 1978 marked a double Harvey anniversary: 350 years had passed since the publication of his epochal discovery, and it was the 400th anniversary of Harvey's birth. The American Association for the History of Medicine celebrated this special occasion in Kansas City on May 13, 1978. Three lectures were given which examined "the interaction between Harvey's scientific achievement and his professional identity as a practising physician" (p. vii) from several points of view.

In the book resulting from this Symposium, the introductory remarks by Saul Jarcho are followed by Charles Webster's masterly paper, "William Harvey and the Crisis of Medicine in Jacobean England," in which Webster discloses the massive health problems which London, with her population of 20,000, had then to face. A specific Board of Health did not exist. In a similar way to the medical faculties in the large cities of the Continent, e.g. in Paris and Vienna, the College of Physicians in London had to deal with health problems without the possibility of effectively intervening, for instance, against the unlicensed practitioners who infested London and her surroundings. On the contrary, the College became engaged in unpleasant rivalries with the Barber-Surgeons Company and with the Society of Apothecaries. In a thorough analysis of partly new archival material, Webster shows how Harvey influenced, "in view of his increasing seniority and high reputation as a scholar" (p. 10) and as a distinguished representative of the College, professional matters in this period of crisis before the outbreak of the Civil War. It is the same period (before 1640) in which Harvey helped experimental science to its break-through with his discovery of the circulation. Quite correctly, Webster attaches great importance to recognizing that a crisis of health as well as Harvey's innovation in medicine were factors in a general pattern of cultural change. The advance of chemical therapy and of the Paracelsians—Forester, Anthony and Arthur Dee, and Robert Fludd—was also part of it. In the changing medical and cultural climate the neoplatonism of a Gilbert created fresh perspectives and the microcosm-macrocosm speculations of a Robert Fludd or a Walter Warner exemplified the biological framework and the mechanical analogies of the pre-Harveian "circulatory" hypotheses. Webster has succeeded in a brilliant and most concise manner in closing the gulf that has hitherto separated Harvey's professional and scientific activities and in showing the innovative ideas Harvey had received for his biological work from the crisis of medicine in Jacobean England.

Jerome J. Bylebyl's contribution to the Harvey Symposium (in addition to the general editorship) carries the title "The Medical Side of Harvey's Discovery: The Normal and the Abnormal." Under this title he analyses a number of factors that were of importance for the discovery of the circulation of the blood and which were determined less by Harvey's anatomical and vivisectional methods than primarily by his activity as a practicing physician. In the latter role he became acquainted with normal and abnormal reactions of the body, such as emotions accompanied by congestion or feverish illnesses as well as with therapeutic techniques such as venesection and the use of tight and moderate ligature. He also came upon the already existing concept of the arterio-venous anastomoses, ideas concerning the origin of arterial and venous haemorrhage, and an interpretation of the function of the valves of the veins. The explanations for the phenomena which often dated back to antiquity, were revived during the Renaissance, expanded by new observations and were shaped into a set of medical concepts which Harvey encountered and which in some degree determined his medical practice.

In his doctoral dissertation of 1969, "Cardiovascular Physiology in the Sixteenth and Early Seventeenth Centuries," Bylebyl claimed that Harvey's predecessors, including Galen, ought to be studied in their own light and not exclusively in the light of Harvey's discovery.[1] Bylebyl fulfills this demand with circumspection in the first part of "The Medical Side of Harvey's Discovery" (pp. 35-64) by succinctly analysing relevant ideas from antiquity up to the work of Harvey's contemporary, Adriaan van den Spieghel, in the sections: "The Hippocratics," "Galen," "The arterial haemorrhage," "The Renaissance," "Spieghel on the Movement of the Heart and Blood." On a broad basis he lays the foundation for understanding that a number of humoral-pathological theories were available to Harvey which could either help or impede him when trying to penetrate and to organize the traditional medical system from a new point of view, i.e. from his theory of the heart beat, as will now be illustrated.

According to Bylebyl, the "Early Harvey" made this attempt when he started in 1616 with his anatomical lectures at the London College of Physicians. For his detailed interpretation of these lectures Bylebyl has used both the facsimile reproduction of 1886 and the one by Gweneth Whitteridge of 1964. The chapter "The Early Harvey" draws substantially from the new scientific findings of Harveian research, acquired to a great extent between the two jubilees of 1957 and 1978. Of special importance in this context is Bylebyl's proof the *De motu cordis* consists of two treatises formulated at two different points of time.[2] With this opinion Bylebyl met the approval of the doyen of Harveian research, Walter Pagel (*New Light on William Harvey,* Basel-London: Karger, 1976, pp. 10 ff.). Bylebyl assigned to the early Harvey, who had not yet discovered the circulation, the imputed monograph (On the Movement of the Heart). In his lecture Bylebyl shows the early Harvey deeply entangled in Galenic concepts of different faculties (attractive, expelling, assimilating faculties). Yet Harvey is already trying to formulate his own theory of the heartbeat which now presides over his thinking. The mechanistic turn which his thought now takes, is demonstrated convincingly by Bylebyl in unfolding the new vocabulary: "Protrude," "impel," "propel," "impulse," "impetus," and "force." To this he also adds Harvey's observations that abnormal conditions in the blood-supply may cause gangrene, on the one hand, or inflammation and swelling, on the other.

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[1] Yale University, 1969.

[2] "The growth of Harvey's *De motu cordis,*" *Bull Hist. Med*, 1973, *47:* 427-470.

In the section on "The Discovery of the Circulation" Bylebyl stresses, of course, the successful application of calculus, or of quantitative thinking. Here he is able to show that this thinking was already pre-formulated in the contemporary theoretical environment, particularly in the cardiovascular physiology contained in *De subtilitate* (1621) by the Venetian physician and anatomist Emilio Parigiano. We know from Harvey's *De generatione animalium,* Ex. 14-16, that he made use of the Venetian's book, whether or not before the discovery of the circulation is not provable. The stimulation which Harvey received from Galen's discussions of arterial haemorrhage for the solution of his questions concerning the quantitative implications of his theory of the heartbeat can be grasped well enough: "He came to suspect that even within the intact body the heart must be responsible for something like a combination of arterial and venous haemorrhage, which exactly cancel each other out" (p. 82). Bylebyl regards this assumption to be the starting point for a quantitative treatment of the problem.

Bylebyl's last section is headed "The Circuit of the Blood." This section very clearly shows that Bylebyl is fully aware of the many layers in Harvey's thinking, of its empirical, theoretical and philosophical elements which found their synthesis in the discovery of the circulation of the blood. The value of Bylebyl's extremely thorough treatise lies in the consequent elaboration of those phenomena which became important for Harvey's discovery and which are directly connected with his medical practice.

The weighty (although slender) volume is completed by the substantial study of Robert G. Frank, Jr., "The Image of Harvey in Commonwealth and Restoration England" (pp. 109-143) in which the author shows many different aspects of this theme, such as "the emergence, nature, and function of Harvey as myth and symbol, from the 1650s through the 1680s" (p. 104). Frank demonstrates impressively both in the text and in charts the effect of Harvey's scientific work on publication activity in Britain. While before 1630 Britain primarily imported scientific works, she exported anatomical publications at an even increasing rate after 1630. In the subsequent sections Frank shows, by using rich and partly holograph material, the manner in which Harvey's work was received in Cambridge and in Oxford, by the College of Physicians in London, and in the Commonwealth. In Cambridge and Oxford the main disseminators of his doctrine were above all Glisson and Petty, while the circle of the later Royal Society also played a very active role. Due to the political changes around 1650 the initial reservations of the College of Physicians gave way to a veneration for Harvey which was recognized by the institution of the Harveian Museum and Harveian Oration. Frank analyses in detail the Harveian orations between 1656 and 1665 and the early Restoration literature. An extraordinarily richly accentuated and symbol-laden picture of Harvey reaches from the "great promoter of Anatomical Knowledge" (Robert Boyle) to the analogies with Copernicus and Galileo (Charleton). One cannot put aside this treatise and the whole volume without being thankful in many ways to the authors, to the editor, and to the American Association for the History of Medicine, under the patronage of which this profound contribution to Harveian research was published.

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OWEN H. WANGENSTEEN AND SARAH D. WANGENSTEEN. *The Rise of Surgery from Empiric Craft to Scientific Discipline.* Minneapolis: University of Minnesota Press, 1978. xviii + 785 pp. Ill. $39.50

Owen H. Wangensteen, Regents' Professor of Surgery Emeritus at the University of Minnesota, has a well deserved reputation as a teacher. During his 37 years as Chairman of the Department of Surgery (1930-1967), he educated 33 current full-time professors of surgery or heads of departments. Throughout his active surgical career, he has championed the cause of medical history and was the driving force behind the establishment of a department and library devoted to this discipline at the University of Minnesota School of Medicine. Over a period of many years he has been interested in many aspects of the history of surgery, including the evolution of the surgeon's understanding of wound healing and infection. Since his retirement, he and Mrs. Wangensteen have been frequent researchers in the major medical libraries of the world. One result of this longstanding interest and serious research is the publication of this sizeable volume.

The authors have not tried to prepare a systematic history of surgery. Their primary goal was to assess those technical factors that contributed to or retarded surgical advance chiefly in the area of surgical wound management. Elective surgery was almost nonexistent prior to the general acceptance of prophylactic surgical antisepsis in the mid 1880s. Therefore, the Wangensteens have carefully scrutinized the successes and failures in operations of dire necessity as reported in the literature over many centuries. They then examined those developments that led the surgeon from empiricism to an acceptance of scientific observations in other disciplines, initially and notably microbiology.

Following an excellent overview, the authors present detailed historical considerations of such topics as wound management in amputation, debridement, lithotomy and lithotomists, intestinal obstructions, Cesarean section, ectopic pregnancy, ovariotomy, vesicovaginal fistula, and vascular surgery. The often-told histories of anesthesia, antisepsis, and the germ theory of infection and disease are treated with fresh insights. The role of hospital reformers, sanitarians, the beginnings of surgical accountability, and the changing preparations for operation are also considered. Each chapter is essentially a separate essay with its own concise summary.

The 580 pages of text are accompanied by 140 pages of footnotes and suggested further readings (as well as a 65 page name and subject index). The footnotes contain extensive bibliographic citations as well as informative annotations. The careful analysis of the operative procedures performed prior to the era of elective surgery is most enlightening, particularly in the hands of the senior author—a master surgeon, who brings to the work a technical knowledge and understanding that permits interpretations a non-surgeon might miss. This background combined with the extensive research conducted by Dr. and Mrs. Wangensteen is one of the great strengths of this book.

It is also responsible for a minor shortcoming of the publication. The text in some places is quite technical—the chapters on intestinal obstructions and gastric surgery are examples of material that may prove difficult reading to the historian or lay person without surgical training. But how refreshing it is for the reader with some surgical background to digest a scholarly treatise on surgical problems coauthored by one who knows whereof he speaks!

The thorough review of primary sources has brought to light a number of figures who have heretofore not appeared in the annals of important contributors to the advance of surgery—men whose work was ignored or overlooked. An example is Claude Pouteau of Lyons (1724 or 5-1775) who emphasized cleanliness in operations and dressing changes; recognized the contagious nature of hospital gangrene; recommended disposable paper compresses for surface dressings of wounds; and was critical of those who operated by the clock. Pouteau's record of 120 perineal lithotomies with only three deaths in the mid 18th century is truly remarkable. Elsewhere in this text, the Wangensteens have called our attention to Joseph Lister's predecessors who placed antiseptics in the wounds of compound fractures with excellent results. Among the thoughtful and well-researched expositions in this work is the authors' thesis that in spite of the significant contributions of Lister to surgical antisepsis, Ignaz Semmelweiss should be credited as the originator of current prophylactic surgical antisepsis. Although several topics covered in the book have appeared in journal articles, they have been rewritten and generally expanded.

The detailed and technical nature of this work does not condemn one to heavy reading. It is always informative, frequently entertaining, and is liberally sprinkled with the philosophy of the senior author. The informative footnotes contain a wealth of information, including such pearls as the fact that in early 19th-century Paris human fat taken from the dissection rooms was illicitly sold as horse or dog fat to grease wagon wheels and was also used to light the lamps of the Faculty of Medicine and the palace of Luxembourg during the marriage of Napoleon and Marie-Louise. Another footnote relates the tale of Robert Liston's patient in pre-anesthesia days who agreed to have surgery for a vesical calculus, but on the day of scheduled surgery locked himself in the toilet! Liston, obviously a surgeon of determination, forced open the door, fastened the patient to the table and proceeded with the perineal lithotomy.

This reviewer found little to criticize in this work. The authors have achieved the goal they set for themselves. As noted earlier, some chapters are fairly technical and may be hard reading for the uninitiated, and this same group of readers may find little use for the periodic references to recent clinical investigations and research. On two occasions one finds misleading statements which slipped by the authors. On page 293, one is led to believe that Dr. William S. Halsted's drug addiction was restricted to cocaine; in fact, his initial addiction to cocaine was short-lived, and he used morphine for the remainder of his life. On page 510, the phrase "Sanitary Commission of the United States Army" suggests that the all voluntary, civilian U.S. Sanitary Commission during the Civil War was a part of the military. Typographical errors are a rarity.

The chapter on wound management in amputation ends with a statement which admirably characterizes this volume. "Historic appraisals of accomplishments in a technical discipline may be heightened by an assessment including the realistic and chastening lessons of experience *that only active participants in such disciplines can provide*" [italics mine]. It would behoove those individuals who sit on study sections and other funding bodies to keep this text in mind on those occasions when physicians and scientists without advanced historical training approach them for support of analytical studies in the history of their technical discipline. There is a need for such historical works as the Wangensteens have produced. It will be a welcome addition to any surgeon's library and will provide considerable insight to all historians of surgery, regardless of their background. With the publication of this book, coauthored by his competent wife, Sarah, Dr. Owen Wangensteen continues to live up to his reputation as one of surgery's great teachers.

Reviewed by PETER D. OLCH, M.D., Deputy Chief History of Medicine Division, National Library of Medicine, Bethesda, Md.

GARLAND E. ALLEN. *Life Science in the Twentieth Century.* Cambridge: Cambridge University Press, 1978. xxiii + 257 pp. $17.95 (cloth), $6.99 (paperbound).

When Garland Allen's *Life Science in the Twentieth Century* was first published by John Wiley and Sons in 1975, the edition was literally riddled with printing errors: misspellings on nearly every page; words omitted; whole lines repeated; and, worst of all, the descriptive captions to all the figures were left out, making these illustrations virtually useless to most readers, and especially to students. This botched printing job considerably reduced the value of what would otherwise have been an excellent undergraduate textbook in the history of biology, for Allen's work was a remarkable synthesis presenting the development of several major areas of biological research from the last decade of the nineteenth century to the mid-1960s.

The recent re-edition of Allen's book by Cambridge University Press, which has taken over the History of Science Series from Wiley, corrects many of these errors and expands the index somewhat, making the work far more useful as a student text. Unfortunately, however, a number of errors from the original version still remain in the Cambridge edition (e.g., 'differeent' for 'different' on p. 70; 'pathways' for 'pathway' on p. 89; 'wote' for 'wrote' on p. 97; the reference to 'p. 129' for 'p. 128' on p. 139; 'found' for 'formed' on p. 156), but these are mostly of a minor nature and can easily be overlooked. More distressing are the *new* errors which have been introduced into the Cambridge edition, both in the body of the text (e.g., 'versus' becomes 'verses' on p. 138) and in the expanded index (e.g., 'Luria, Salvador' becomes 'Lurig, Salvador' and 'Magendie, François' becomes 'Magendie, Pierre').

All in all, one is tempted to offer what may be described as subdued congratulations to Cambridge University Press for its substantially improved but still imperfect edition of *Life Science in the Twentieth Century*. Even if no other corrections had been made, the addition of the captions to the figures would have overcome the biggest single obstacle to the book's usefulness; and this Cambridge has done. But the mere fact that the Cambridge printing of this text is an improvement over the Wiley printing would be inconsequential if Allen's text itself were without substantive value; and since the first printing of the book was not reviewed in this journal, at may be pertinent at this point to outline its content and approach.

The research areas which Allen considers in his study include "embryonic development (notably cell and tissue differentiation), heredity (notably the Mendelian and chromosome theories), evolution (anti-Darwinism, neo-Darwinism, and the synthetic theory), general physiology (physiological control mechanisms), biochemistry, and molecular biology" (p. xi). Allen acknowledges the importance of a large number of other biological, or biologically-related, fields to which his text gives little or no direct attention, but he defends his selection on the grounds that the topics he has chosen were most central to and characteristic of general biology during the first two-thirds of the present century.

Thematically, Allen is concerned "to show how biology as it was practiced in the nineteenth century—in natural history, descriptive and speculative; in physiology, largely mechanistic—was transformed into its twentieth-century mold: experimental, analytically rigorous, and integrative" (p. xv). In pursuing this aim, Allen discusses the spread of systematic experimentalism from physiology into other branches of biology, as well as the changing relations between the physical and biological sciences in the twentieth century. And in a particularly fine chapter he recounts the transformation undergone within physiology itself, in the 1920s and 1930s, from a predominantly mechanistic orientation to a predominantly integrative or holistic one. The use of a relatively sophisticated Marxist approach to this subject allows Allen, on the one hand, to relate scientific and philosophical changes to intellectual factors such as the internal development of physiology and the growth of a non-mechanistic physics since the turn of the century. But, on the other hand, although his text "is devoted largely to internalist history" (p. xiii), Allen also points to a number of extremely suggestive parallels between this re-orientation within physiological theory and the major socio-economic transformations of the inter-war period. These parallels, Allen notes, "do not automatically indicate cause and effect relationships," but they cannot be dismissed as fortuitous either; and he sets it as a task for future, more complete, histories of the subject to reveal the interconnections behind such parallels.

While the other chapters of the book do not develop the socio-economic theme in the way that the chapter on physiology does, Allen's historical narrative is clear and compelling throughout; his treatment of technical material is, for the most part, accessible (although the chapter on biochemistry could be arduous for those without a background in that area); and his plan of organization is conspicuously coherent. Finally, it should be noted that the bibliographical essay accompanying this text, like others published in the History of Science Series, is a first-rate resource for students.

It is for substantive reasons such as these, together with the improvements of the Cambridge printing of the book, that Allen's *Life Science in the Twentieth Century* can be recommended for use as an undergraduate text. It is an indispensable tool for bringing the twentieth century into courses on the history of biology. And, given the author's approach to his subject, it may also make an important contribution to bringing the discipline of the history of biology into the twentieth century.

Reviewed by W. R. ALBURY, Ph.D., School of History and Philosophy of Science, University of New South Wales, Kensington, N.S.W. 2033, Australia.

JOHN S. CHAPMAN. *The University of Texas Southwestern Medical School: Medical Education in Dallas, 1900-1975.* Dallas: Southern Methodist University Press, 1976. xii + 128 pp. Ill. $10.00.

This volume might more appropriately have been subtitled "an institutional history" rather than "medical education in Dallas," for there is very little mention of the curriculum, of teaching methods and philosophy, of the nature of the student experience, or of the faculty's record in practice and research. What this book does provide, and in a skillful and informative way, is a chronicle of the administrative changes and institutional growth of the Southwestern Medical College in Dallas. Throughout, the narrative is made colorful by the author's personal recollections of individuals and events and by his use of oral history. The book is able to relate the growth of the school to the development of the city and the state, as well as to national political and economic events, in a way seldom done effectively in institutional histories. The result is a highly readable and balanced account of the school's development over the past seventy-five years.

My only criticism is that there is no discussion of the developments in medical education elsewhere in America that would have placed the story in Dallas in broader perspective. The focus of the book is of necessity on the Southwestern Medical School, but the reader is unnecessarily left with little sense of how the events at this school might have been part of the more general changes that were occurring at the same time in medical education in the rest of the country. As a consequence, the author's effort to place the story of Southwestern in the broader social context is only partially successful. Notwithstanding this one weakness, the book is well prepared and should stand as one of the better studies of an individual medical institution.

Reviewed by KENNETH M. LUDMERER, M.D., Department of Internal Medicine, Washington University School of Medicine, St. Louis, Mo.

Luis García-Ballester, Guillermo Olagüe and Miguel Ciges. *Classics in Modern Otology*. Granada: University Press, 1978. 354 pp. Ill. $18.00.

This 354-page book is addressed to a hitherto neglected area in the history of medicine, the story of the medical specialty of Otology. After an introductory chapter discussing the multiple factors which have led to medical specialization, the authors present excerpts from 45 classical papers. Among others represented are Itard, Toynbee, Fowler, Von Troltsch, Politzer, Nylén, Bárány, Bezold, Neumann, Holmgren, Ménière, Dandy, and Hallpike. The presentations are divided into the position of otology in the 19th century, methods of examination, the middle ear, and the inner ear. The papers are given in the authors' original languages. Thus the reader will require a knowledge of German, French, Spanish as well as English to enjoy the whole work.

There is no index and only 153 references are listed in the bibliography. Beyond a mere mention of the "anatomists and otorhinolaryngologists in Johns Hopkins Hospital" no description is given of the important contributions of that group in the mid twentieth century. No reference is made to the work of Guild, Crowe, Walzl, or Woolsey.

The book is a useful reference source, but one regrets its limitations.

Reviewed by Donald F. Proctor, M.D., Department of Environmental Health Science, The Johns Hopkins University School of Hygiene and Public Health, Baltimore, Md.

THE BULLETIN RECENTLY RECEIVED*

Abse, Dannie (Editor). *My Medical School.* London: Robson Books; Totowa, NJ: Rowman and Littlefield, 1978. 211 pp. Ill. $14.50.

Allen, Alfred M. *Skin Diseases in Vietnam, 1965-72.* Washington, D.C.: Office of the Surgeon General and Center of Military History, United States Army, 1977. xix + 185 pp. Ill. $8.25. Purchase through the U.S. Government Printing Office, Washington, D.C. 20402.

Barnes, Barry and Shapin, Steven (Editors). *Natural Order: Historical Studies of Scientific Culture.* Beverly Hills, CA and London: Sage Publications, 1979. 255 pp. $18.95 (cloth); $8.95 (paperbound).

Brody, Howard. *Placebos and the Philosophy of Medicine: Clinical, Conceptual, and Ethical Issues.* Chicago: The University of Chicago Press, 1980. vii + 164 pp. $16.00.

Bromberg, Walter. *The Uses of Psychiatry in the Law: A Clinical View of Forensic Psychiatry.* Westport, CT: Greenwood Press, 1979. x + 442 pp. Ill. $25.00.

Davis, Audrey, and Appel, Toby. *Bloodletting Instruments in the National Museum of History and Technology.* Washington, D.C.: Smithsonian Institution Press, 1979. v + 103 pp.

Estes, J. Worth. *Hall Jackson and the Purple Foxglove: Medical Practice & Research in Revolutionary America 1760-1820.* Hanover, NH: The University Press of New England, 1980. xvi + 291 pp. $15.00.

Kock, Wolfram (Editor). *Nordisk Medicinhistorisk Årsbok.* Stockholm: The Museum of Medical History, 1979. Ill. 170 pp.

Lille Médical. 3rd Series. Vol. 24. October, 1979.

Lindberg, Donald A. B. *The Growth of Medical Information Systems in the United States.* Lexington, MA: Lexington Books, 1979. viii + 194 pp. $21.00.

MacLean, Ian *The Renaissance Notion of Woman: A Study in the Fortunes of Scholasticism and Medical Science in European Intellectual Life.* New York: Cambridge University Press, 1980. viii + 119 pp. $16.50.

McKeown, Thomas. *The Role of Medicine: Dream, Mirage, or Nemesis?* Princeton, NJ: Princeton University Press, 1980. xvi + 207 pp. $16.00 (cloth); $5.95 (paperbound).

O'Neill, Ynez Violé. *Speech and Speech Disorders in Western Thought Before 1600.* Westport, CT: Greenwood Press, 1980. xii + 246 pp. Ill. $19.95.

Patterson, K. David (Compiler). *Infectious Diseases in Twentieth-Century Africa: A Bibliography of Their Distribution and Consequences.* Waltham, MA: African Studies Association (Cross Roads Press), 1979. xiii + 251 pp. $25.00 (paperbound).

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* The *Bulletin* reserves freedom of decision as to the publications to be included in this section. Items received, other than those assigned for review, are ultimately incorporated into the collection of the Institute of the History of Medicine.

Pearce, Gerald H. *The Medical Report and Testimony.* London and Boston: George Allen & Unwin, 1979. 104 pp. $16.50.

Piñero, José María López. *Ciencia y Técnica En La Sociedad Española De Los Siglos XVI y XVII.* Barcelona: Labor Universitaria, 1979. 511 pp.

Reverby, Susan, and Rosner, David (Editors). *Health Care in America: Essays in Social History.* Philadelphia: Temple University Press, 1979. 275 pp. $15.00 (cloth); $6.95 (paperbound).

Sanchez, José Lopez. *Dialectic and Medicine.* New Delhi: Published for the Embassy of Cuba, 1978. 63 pp.

Schiller, Francis. *Paul Broca: Founder of French Anthropology, Explorer of the Brain.* Berkeley, CA: University of California Press, 1980. ix + 350 pp. $25.00.

Schiller, Joseph. *Physiology and Classification: Historical Relations.* Paris: Maloine S. A., 1979. (Séries Université de Compiègne). xiii + 194 pp.

Shyrock, Richard Harrison. *The Development of Modern Medicine: An Interpretation of the Social and Scientific Factors Involved.* Madison, WI: University of Wisconsin Press, 1980. xiv + 417 pp. $17.50 (cloth); $7.50 (paperbound).

Thomson, William A. R. *Black's Medical Dictionary.* 32nd edition. New York: Barnes and Noble, 1979. 973 pp.

Vogel, Morris J., and Rosenberg, Charles E. (Editors). *The Therapeutic Revolution: Essays in the Social History of American Medicine.* Philadelphia: University of Pennsylvania Press, 1979. xiii + 270 pp. $18.50.

Wintrobe, Maxwell M. *Blood, Pure and Eloquent: A Story of Discovery, of People, and of Ideas.* New York: McGraw-Hill Book Company, 1980. xvii + 771 pp. Ill. $25.00.

Youngson, A. J. *The Scientific Revolution in Victorian Medicine.* New York: Holmes and Meier Publishers, 1979. 237 pp. $22.50.

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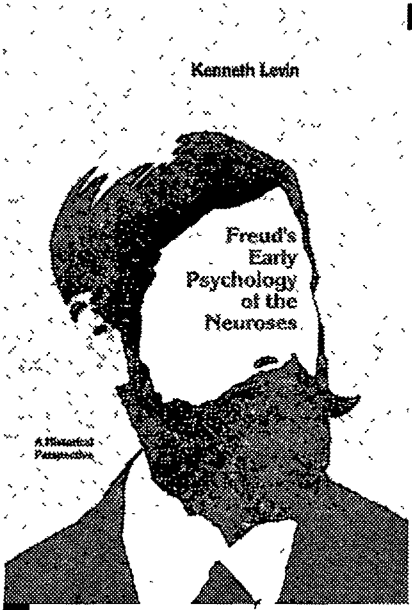

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THE PRIMAL PARRICIDE

EDWIN R. WALLACE, IV

Freud might almost have begun *Totem and Taboo,* as Frazer began *The Golden Bough,* with two questions. And they would have been: "Why had primitive man both to protect strenuously and slaughter ritually his totem? Why was he forbidden to take a wife from his totem clan?" In *Totem and Taboo* Freud answers these questions with the most radically speculative and controversial hypothesis of his entire career:

> One day the brothers [of the primal horde] who had been driven out came together, killed and devoured their father and so made an end of the patriarchal horde . . . in the fact of devouring him they accomplished their identification with him, and each one of them acquired a portion of his strength . . . After they had got rid of him, had satisfied their hatred and had put into effect their wish to identify themselves with him, the affection [for him] which had all this time been pushed under was bound to make itself felt. It did so in the form of remorse . . . The dead father became stronger than the living one had been—for events took the course we often see them follow in human affairs to this day. What had up to then been prevented by his actual existence was thenceforward prohibited by the sons themselves, in accordance with the psychological procedure so familiar to us in psycho-analysis under the name of "deferred obedience." They revoked their deed by forbidding the killing of the totem; and they renounced its fruits by resigning their claim to the women who had now been set free. They thus created out of their filial sense of guilt the two fundamental taboos of totemism, which for that very reason inevitably corresponded to the two repressed wishes of the Oedipus complex.[1]

The unconscious memory and guilt over this deed were posited to be genetically transmitted from generation to generation even into our own

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[1] Sigmund Freud, *Totem and Taboo,* (1913), in *The Standard Edition of the Complete Psychological Works,* Trans. from German under general editorship of James Strachey, 24 vols. (London: Hogarth Press, 1974), 13: 141-143 (hereafter referred to as *S.E.*); Freud, *Totem and Taboo,* in *Gesammelte Werke,* 17 vols (London: Imago Publishers, 1947-1972), 9. 171-173 (hereafter referred to as G.W.).

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time. Freud asserted that they form the bedrock not only of every present day neurosis, but of "religion, morals, society, and art,"[2] all of which thus have both ontogenetic and phylogenetic foundations.

This theory has embarrassed Freud's anthropology and his disciples for years; it has given those who so desire it a facile excuse to dismiss the rest of Freud's work in the area. Freud himself was aware that his assumption of a collective mind and the phylogenetic transmission of idea and affect presented "grave difficulties."[3] He also admitted that "the mere existence of a wishful phantasy of killing and devouring him [the primal father] would have been enough to produce the moral reaction that created totemism and taboo . . . No damage would thus be done to the causal chain stretching from the beginning to the present day, for psychical reality would be strong enough to bear the weight of these consequences."[4] Although he never abandoned the theory, he was obviously ambivalent about it. He called it a "scientific myth," once said it was just something he had dreamed up on a Sunday afternoon, and troubled himself to quote a critic who called it a "Just-So Story." I can think of no other piece in his entire corpus—unless it be the Thanatos-repetition compulsion idea or *Moses and Monotheism* (which is itself largely a redressing of the primal father motif)—that is as highly speculative ("mystical" I have called it)[5] as it is. All this makes a search for its determinants interesting and imperative.

In this essay I hope to demonstrate that the theory of the primal parricide has very specific cognitive *and* noncognitive determinants and a long and continuous prehistory. First I will examine the more conscious, more cognitive factors and determinants and then the less conscious, less cognitive ones. In the former category I will consider Freud's early exposure to Lamarckism and the biogenetic law; his early reading and thinking on the parallels between dreams and neurosis on the one hand and primitive and prehistoric behavior on the other; the work of Ferenczi and himself with phobic patients; and his encounters with the ideas of Jung, Darwin, Atkinson, Frazer, and Robertson Smith. In the latter category I will consider Freud's *attitude* toward materialist medicine; psychodynamic factors (most notably his father conflict); and his relationship to the ongoing politics of the psychoanalytic movement.

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[2] *S E*, 13: 156; *G W.*, 9 188.

[3] *S.E*;. 13. 158; *G.W*, 9: 189.

[4] *S E.*, 13: 160; *G.W.*, 9: 192.

[5] E. Wallace, "Freud's mysticism and its psychodynamic determinants," *Bull Menninger Clinic*, 1978, *42*. 203-222.

Freud's exposure to Lamarckism and the biogenetic law began in his first years of medical school. Darwin, whose major works Freud acquired between 1877 and 1883,[6] clearly thought it possible for humans to inherit even quite complicated behavioral traits (such as idiosyncratic physical mannerisms and personal habits), as well as "complex mental attributes."[7] Freud's biological preceptor, Carl Claus, espoused similar ideas. Furthermore, Darwin asserted that "every human brain passes in the course of its development through the same stages as those occurring in the lower vertebrate animals."[8] His analysis of emotional expressions, which he saw as ontogenetic and phylogenetic survivals, was based on this.[9]

Anthropologists whom Freud had read before 1900 (including Spencer, Tylor and Lubbock) also adhered to the notion of psychical recapitulation and Lamarckism. Spencer asserted that "personal experiences, daily elaborated into thoughts, cause small modifications of these structures and powers."[10] Another anthropologist, Morgan, penned, "We have the same brain, perpetuated by reproduction, which worked in the skulls of barbarians and savages in by-gone ages; and it has come down to us ladened and saturated with the thoughts, aspirations and passions, with which it was busied through the intermediate periods."[11] Mark Baldwin, whom Freud read in 1897, writes "[we can expect] general analogies to hold between nervous development and mental development, one of which is the deduction of race history epochs from individual history epochs through the representation of phylogenesis in ontogenesis."[12] Later Freud would meet with the similar thinking of G. Stanley Hall. Carus' *Psyche*, which Freud discovered before 1900, retains like convictions. Freud remained a stout Lamarckian and proponent of Haeckel's law all his life—even though Weismann's books (including *Das Keimplasma,* 1892 edition) sat on his shelves and although Ernest Jones tried hard to dissuade him from these ideas in later years.

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[6] Lucille Ritvo, "Carl Claus as Freud's Professor of the new Darwinian biology," *Int. J. Psycho-Analysis*, 1972, *53:* 279. Ritvo, who examined the volumes, tells us "the dates ranged from the German translation by Victor Carus of *The Descent of Man*, which was inscribed 'Sigismund Freud Stud Med 1857' [sic, 1877?] to 6/6/83 in vol. 2 of the 1868 London edition of Darwin's *The Variation of Animals and Plants under Domestication*." Other works included *On the Origin of Species* and *The Expression of the Emotions*

[7] C Darwin, *The Variation of Animals and Plants Under Domestication*, 2 vols. (New York: D. Appleton, 1883), 1: 451.

[8] C. Darwin, *The Expression of the Emotions in Man and Animals* (London: John Murray, 1872), p. 531.

[9] I feel that Freud's conception of neurosis as an ontogenetic—and later, phylogenetic as well—atavism can be traced partly to the influence of Darwin and to the evolutionary anthropologists' doctrine of survivals.

[10] H. Spencer, *Principles of Sociology*, 3 vols. (New York. D. Appleton, 1898), 1: 619.

[11] L. Morgan, *Ancient Society* (New York: Henry Holt, 1907), p. 61.

[12] M. Baldwin, *Mental Development* (New York: Macmillan, 1895), p. 228.

By 1873 Freud had gone through everything Nietzsche had written up to that time.[13] Among the works the young Freud probably read is *Human, All-Too-Human,* which contains a striking anticipation of Freud's preoccupation with parallels between dreams and neurosis and primitive and prehistoric behavior: "The memory in dreams is brought back to a condition of imperfection, such as everyone may have experienced in prehistoric times, whether asleep or awake . . . Therefore, in sleep and dreams we once more carry out the task of early humanity. . . . I hold, that as man now still reasons in dreams, men reasoned also *when awake* through thousands of years. . . ."[14] In 1899 Freud read Havelock Ellis' statement that, "In our dreams we are taken back into an earlier world . . . Thus in our dreams we may realize our relation to stages of evolution we have long left behind, and by the self-vivisection of our sleeping life we may learn to know something of the mind of primitive man and the source of some of his beliefs . . ."[15]

Having already compared hysteria to ancient customs (1893),[16] in 1900 Freud invoked the biogenetic law to explain the dream symbol: "nothing original," but merely following the "path along which it finds already laid down in the unconscious," the path "along which all humanity passed in the earliest periods of civilization."[17] I feel that his propensity for archaeological metaphors is a reflection of this belief that dreams and neuroses were, quite *literally,* vestiges of the prehistoric. Hence, in 1895 he likened the exploration of hysterical symptoms to that of an archaeological site: "This procedure was one of clearing away the pathogenic psychical material layer by layer, and we liked to compare it with the technique of excavating a ruined city."[18]

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[13] J. Gedo and E. Wolf, "From the History of Introspective Psychology: The Humanist Strain," in *Freud: The Fusion of Science and Humanism,* John Gedo and George Pollock, eds (New York: International Universities Press, 1976), p. 12. Freud's references to Nietzsche appear in unpublished letters to a Rumanian friend.

[14] F. Nietzsche, *Human, All-Too-Human,* Part I, in *Complete Works,* Oscar Levy, ed., 18 vols. (Edinburgh and London: T. N. Foulis, 1909-13), 6: 23-27

[15] H Ellis, "The stuff that dreams are made of," *Popular Science Monthly,* 1899, *54:* 721.

[16] S. Freud, (1893), "Some Points for a Comparative Study of Organic and Hysterical Motor Paralyses," *S.E.,* 1: 170-171, *G.W.,* 1: 53.

[17] S. Freud, (1900), *The Interpretation of Dreams, S.E.,* 5: 346-347; *G.W.,* 2/3 352.

[18] S Freud and J Breuer, (1895), *Studies on Hysteria, S.E.,* 21: 139; *G.W.,* 1: 201.

Thus, by 1900 Freud was theorizing in a Lamarckian-biogenetic vein. His mind had already begun moving in currents that would carry him inexorably to the primal parricide. Jung's plunge into this same stream would only have hastened Freud's drift toward this hypothesis. In December 1909 Jung had written Freud, "I feel more and more that a thorough understanding of the psyche (if possible at all) will only come through history or with its help. Just as an understanding of anatomy and ontogenesis is possible only on the basis of phylogenesis and comparative anatomy."[19]

In 1871 Darwin had broached his theory of the social condition of primal man: "The most probable view is that he aboriginally lived in small communities, each with a single wife, or, if powerful, with several, whom he jealously guarded against all other men. Or he may not have been a social animal, and yet have lived with several wives, like the gorilla, for all the natives [here he quotes Dr. Savage of the *Boston Journal of Natural History*] 'agree that but one adult male is seen in a band; when the young male grows up, the contest takes place for mastery, and the strongest, by killing and driving out the others, established himself as the head of the community.' "[20] J. Atkinson, who spent almost his entire life on a ranch in New Caledonia, was led by his own observations (of native customs and animal life) to accept Darwin's theory of the primal horde. In effect, Atkinson was positing a state of primal exogamy, which was only much later sanctioned by totemism.

However, Atkinson did not stop there, but embellished Darwin's ideas with his own, which were essentially analogous to Freud's "primal parricide":

> A horde [brothers] as yet weak in their impubescence, they are, but they would, when strength was gained with time, inevitably wrench by combined attacks, renewed again and again, both wife and life from the paternal tyrant. But they themselves, after brief communistic enjoyment, would be segregated anew by the fierce fire of sexual jealousy, each survivor of the slaughter relapsing into lonely sovereignty, the head of the typical group with its characteristic feature of a single adult male member in antagonism to every other adult male.[21]

This "vicious circle" was broken only by the intervention of maternal love (for the sons) and a dawning paternal "philoprogenitiveness."

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[19] W. McGuire, ed., *The Freud-Jung Letters* (Princeton: Princeton University Press, 1974), p. 269.

[20] C. Darwin, *The Descent of Man*, 2 vols. (New York: American Dome Library, 1902), 2: 760. Quoted by Freud in *Totem and Taboo*, *S.E.*, 13: 125.

[21] J. Atkinson, "Primal Law," in *Social Origins*, A. Lang, ed., (London: Longmans, Green, 1903), pp. 220-221. Quoted by Freud in *Totem and Taboo*, *S.E.*, 13: 142 fn.

Robertson Smith, Biblical scholar and polymath, for whom Freud (like many others—including Frazer and Durkheim) had the highest admiration, published *Lectures on the Religion of the Semites* (1889) two years before his early death, and was unable to see the second edition (which Freud used) through the press. Smith, like Freud, saw his theory of sacrifice as the most important part of his work. "The leading idea in the animal sacrifices of the Semites, as we shall see by and by, was not that of a gift made over to a god, but of an act of communion, in which the god and his worshippers unite by partaking together of the flesh and blood of a sacred victim."[22] Having read Smith, in *Totem and Taboo* Freud would adopt his emphasis on the cohesive power of this sacrificial meal. Smith had written: "in rejoicing before his god a man rejoiced with and for the welfare of his kindred, his neighbors and his country, and in renewing by a solemn act of worship the bond that united him to his god [whom he viewed quite literally, Smith says elsewhere, as his father], he also renewed the bonds of family and social and natural obligation."[23] Freud came to agree with Smith's notion that "the bond of food" is the mechanism of the cohesive power of the sacrificial meal. "The members of one kindred looked upon themselves as one living whole, a single animated mass of blood, flesh, and bones, of which no member could be touched without all the members suffering,"[24] Smith said. To eat together is to incorporate the same flesh and to reaffirm the material tie on which kinship is based. Smith could give no current example of such a totem meal (although he cited Nilus on an apparent one among 5th-century A.D. Arabian Bedouins). Nevertheless, he posited it as a general feature of the totemic period, and one which had lasted into later religion. Frazer applauded the boldness of Smith's ideas but, initially at least, saw them as unfounded. However, Frazer later ran across what he believed to be the practice of a sacramental totem feast among the Bini in southern Nigeria.[25] Frazer surmised that further work in Africa would bring forth additional confirmation of Smith's hypothesis.

Frazer himself, as Freud noted, put forward his own view of the ritual murder of the god or king. He reported the custom of slaying the representative of Saturn after thirty days of revel, and asserted, "In very early times the old Latin kings personated a god and were regularly put to death in that character . . ."[26] Like Freud, Frazer felt the deity was doubly represented—both in the sacrificial victim and in the god to whom the sacrifice was made. Unlike Robertson Smith, who saw animal sacrifice as older than human, Freud felt that "the original animal sacrifice was already a substitute for a human sacrifice—for the ceremonial killing of the father. . . ."[27]

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[22] R. Smith, *Lectures on the Religion of the Semites* (New York· Macmillan, 1927), pp 226-227.

[23] *Ibid.*, pp. 29-30

[24] *Ibid.*, p. 263.

[25] J. Frazer, *Totemism and Exogamy*, 2 vols (London: Macmillan, 1910), 2 590.

From this account of Smith, Darwin, Frazer, and Atkinson I will turn to Freud's clinical work. He analyzed Little Hans by proxy (from the reports of his father, himself an analyst) from 1906 to 1908. The boy presented with a phobia that he would be bitten by a horse in the street. Little Hans was in the throes of the Oedipal complex and sought to dispossess his father of the mother. Unable to acknowledge these feelings consciously, he displaced his ambivalence toward the father onto the horse, whom he thenceforth both feared and admired. Biting (castration) was to be his punishment for Oedipal aggression. Whether by this date (1908) Freud had noted the similarity in the primitive's (ambivalent) attitude toward his totem and Hans' attitude toward the object of his phobia, I do not know. Perhaps this observation came only after encountering Frazer's manifold data on totemism. In any event, in *Totem and Taboo* Freud would refer specifically to the Little Hans case and compared the attitude of Hans toward the horse to that of the primitive toward his totem.

Whereas in *Totem and Taboo* Freud called Little Hans a case of "negative totemism" (since the attitude of fear predominated over that of identification and affection toward the object), Ferenczi published a case (of Little Arpad, 1913) which Freud compared to "positive totemism." "His attitude towards his totem animal was superlatively ambivalent: he showed both hatred and love to an extravagant degree."[28] According to Ferenczi, "The slaughtering of poultry was quite a festival for him. He could dance round the animals' bodies for hours at a time in a state of intense excitement."[29] Afterward he would caress and stroke the very animals he had mistreated. Little Arpad himself confessed that his father was the cock. Freud felt that Arpad's complete identification with his totem animal and his ambivalent behavior toward it justified him in "substituting the father for the totem animal (in the case of males)."[30] As

[26] J. Frazer, *The Magic Art*, vol. 2, pp. 312-313, in *The Golden Bough*, Part 1, 3rd edition, (New York: Macmillan, 1935). Quoted by Freud in *Totem and Taboo, S E* , 13: 151

[27] *Totem and Taboo, S E.*, 13: 151; *G W.*, 9: 182.

[28] *Totem and Taboo, S E.*, 13 130

[29] S. Ferenczi, "A Little Chanticleer," in *Sex and Psychoanalysis: The Selected Papers of Sandor Ferenczi*, Ernest Jones, trans., 3 vols. (New York: Basic Books, 1950), 1: 246.

[30] *Totem and Taboo, S E.*, 13: 131; *G.W.*, 9: 159.

confirmation of this he reminded us that primitives themselves describe the totem as their "common ancestor and primal father." From this Freud concludes his striking, *psychodynamic* explanation (as opposed to the *biogenetic* one which immediately follows):

> If the totem animal is the father, then the two principal ordinances of totemism, the two taboo prohibitions which constitute its core—not to kill the totem and not to have sexual relations with a woman of the same totem—coincide in their content with the two crimes of Oedipus, who killed his father and married his mother, as well as with the two primal wishes of children, the insufficient repression or the reawakening of which forms the nucleus of perhaps every psychoneurosis. . . . In other words, it would enable us to make it probable that the *totemic system—like little Hans's animal phobia and little Arpad's poultry perversion—was a product of the conditions involved in the oedipus complex* [my italics.][31]

Beneath this psychological explanation Freud places the phylogenetic, historical one that (for better or worse) comes immediately to mind when most people think of Freud's anthropology.

The factors so far considered constitute the *cognitive* building blocks of Freud's hypothesis, but they do not explain what motivated him to select out these data and assemble them as he did. This drive was furnished by three, partly unconscious, determinants: Freud's attitude toward mechanistic medicine; his father conflict; and his relationship to analytic politics.

Freud had cut his teeth on the mechanistic tenets of mid-nineteenth century German materialistic medicine. He had worked with one of the founders of this approach—Brücke. In their youth Brücke and Dubois-Reymond had pledged to uphold the following self-confident and optimistic oath: "No other forces than the common physical-chemical ones are active within the organism. In those cases which cannot at the time be explained by these forces, one has either to find the specific way or form of their action by means of the physical-mathematical method or to assume new forces equal in dignity to the chemical-physical forces inherent in matter, reducible to the force of attraction and repulsion."[32] Freud imbibed this spirit in deep draughts. His first scientific work was very much in this vein and he would have remained with Brücke had finances permitted. Even after leaving Brücke's Institute he continued his neuroanatomical studies and moved to psychiatry only through the (medically) more respectable field of neurology. Though he abandoned his attempts to place psychiatry firmly on the principles of neurology and neuroanatomy, he always cherished the idea that one day psychopathology would be reduced to anatomy and physiology. After formulating psychological theories of hysteria and obsessional neurosis, he retained a category, the "actual neuroses," caused (he felt) by sexual toxins.

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[31] *Ibid*, *S E*, 13: 132, *G W*, 9 160.

[32] E. Jones, *The Life and Work of Sigmund Freud*, 3 vols. (New York: Basic Books, 1953), 1: 40-41.

To a man of this scientific temperament and training and to a man who constantly battled against strong speculative and philosophical trends in himself, it must have been quite a chore to listen to what orthodox medicine branded as the nonsense and lies of neurotic patients.[33] Believing, as he did initially, that their recollections were real events (childhood seductions, etc.) must have eased Freud's embarrassment on this score. Thus one can well imagine Freud's shock in 1897 when he discovered they were fantasies after all. "I was for some time completely at a loss. My confidence alike in my technique and in its results suffered a severe blow . . ."[34] Even though he redeemed himself with the doctrine of psychic reality, was he not farther from Brücke than ever before? Grinstein has interpreted Freud's dream of the self dissection as punishment for leaving Brücke's strict materialistic path.[35] From 1897 on, I believe, Freud was consciously-unconsciously preoccupied with returning to that path.

Now Freud had read many euhemerist authors and, in broad terms, his initial idea of the reality of his hysterics' remembrances exhibits a euhemerist trend. If the very nuclear complex (Oedipus) of neurosis could not be founded on ontogenetic history, then would not the next best thing be to ground it on phylogenetic history? Has not the idea of the phylogenetic transmission of the memory of, and remorse over, the primal crime, in a sense based psychology (and sociology) on biology? However, if his intention was to return to the physical actuality of Brücke, then his hypothesis had backfired for, although the fantasies retained a certain reality after all, it was the sort of reality that made each neurotic an epiphenomenon of an event long ago. Like Jung, whom Freud may have been unconsciously copying (identification with the soon-to-be-lost loved object?) he has stood the individual on his head in favor of the archetype. He is farther from his cherished actual reality than ever.

The next group of factors, the psychodynamic, are related genetically to his father conflict and at the time of writing to the problems with Jung (based partly on the prototype of the former). In a previous paper I have assembled a good deal of data in support of what Freud had said about himself—that his intrapsychic life was characterized by much ambivalence toward the father.[36] This asserted itself strongly in several symptoms (most notably "*Todesangst,*" Freud's death anxiety) and in his relationship with several males—Breuer, Meynert, Fleischl, Fliess, and Jung. Between Freud and Jung there was a complicated oscillation of the father-son roles. Their relationship, which began in 1906, soon grew quite close; the two shared a strong interest in mythology and anthropology. After 1909, the high-water mark of their friendship, it became quite apparent that neither could live in the other's shadow. Their letters are chock full of rivalrous remarks. Freud suffered two faints in the presence of Jung which Freud himself related to death wishes toward Jung.[37] Jung asserted of Freud that "the fantasy of father-murder was common to both cases."[38] I have previously credited competitiveness between the two as one of the factors quickening Freud's entry into the mythological domain. The year in which Freud wrote most of *Totem and Taboo* (1912) witnessed the steadily increasing decay of their friendship.

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[33] I discuss the conflict between the rationalistic-positivistic and the speculative-metaphysical side of Freud in "Freud's mysticism and its psychodynamic determinants" (see fn. 5).

[34] S. Freud, (1925), *An Autobiographical Study*, *S.E.*, 20: 34; *G W.*, 14: 60.

[35] A. Grinstein, *On Sigmund Freud's Dreams* (Detroit: Wayne State University Press, 1968), p. 420

By April 1912, Jung was beginning to disclose to Freud his departures from a sexual explanation of the transcendental and symbolic.[39] Jung told Freud he had come to conclusions "which show incest primarily as a fantasy problem. Originally, morality was simply a ceremony of atonement, a substitutive prohibition, so that the ethnic prohibition of incest may not mean biologic incest at all, but merely the utilization of infantile incest material for the construction of the first prohibitions."[40] Freud lost no time in disclosing to Jung his "strong antipathy" toward this "innovation," which was "very similar to what was said before the days of [psychoanalysis]."[41] By September 1912, Freud had read Part II of the *Wandlungen,* which presents Jung's generalized libido concept; Freud had referred to this as Jung's "Declaration of Independence." As Jung promised, he had kept the role of sexuality and incest to a minimum. It is very likely that Freud's knowledge, certainly by April 1912, of Jung's desexualizing trend, could have strengthened his emphasis on the

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[36] E. Wallace, "Freud's father conflict· the history of a dynamic," *Psychiatry,* 1978, *41* 33-46.

[37] M Schur, *Freud: Living and Dying* (New York: International Universities Press, 1972), p. 268

[38] C. Jung, *Memories, Dreams, Reflections* (New York: Vintage Books, 1965), p. 157.

[39] *Freud-Jung Letters,* pp 505-506

[40] *Ibid.,* p 502.

[41] *Ibid.,* p. 507.

Oedipus complex in society and on the primal parricide. I mean that, if Jung was going to deny the role of the Oedipus complex in culture, then Freud was going to emphasize it all the more—both as a psychological and *historical* factor. If Jung was going to consider incest as primarily a "fantasy problem," then Freud was going to show that it actually existed—in mankind's dawn.

Freud's ambivalence toward Jung found its expression in his attitude toward *Totem and Taboo* in 1913: on the one hand he (May 13, 1913) hoped it would divide him from Jung "as an acid does a salt," on the other (two weeks later) he feared the Totem work would "hasten the break against my will."[42] It is not without significance that the primal parricide idea was fleshed out and penned in the last, turbulent months of the relationship with Jung. Ferenczi and Jones opined that Freud's original elation over *Totem and Taboo* represented his excitement at killing and eating the father and that his doubts were the reaction to the fantasied deed. When Jones asked him "why the man who wrote *The Interpretation of Dreams* could now have such doubts [about *Totem and Taboo*]," Freud replied, "then I described the wish to kill one's father, and now I have been describing the actual killing; after all it's a big step from a wish to a deed."[43] Freud was alternately the murdered father (slain by Jung) and the murdering son (slaying his father and Jung).

By raising his personal dynamic (father conflict) to the level of a phylogenetic universal, based on a deed done long in the past, Freud is on the one hand distancing himself from his patricidal rage, reactivated by the recalcitrant Jung, but on the other hand he is metaphorically expressing its importance (by calling it a primal fact of world history) in his own psychic life. The characterization of the primal parricide as an irrevocable heritability reflects Freud's partial awareness of his own dynamic—the fatalistic inevitability that he must reenact the father conflict and suffer the guilt. Furthermore, the hypothesis may have been a way of undoing his previous attribution of guilt to fathers (when he believed his hysterics' fantasies). In other words, it was the sons, not the fathers, who had committed a crime. However, the element of compromise formation is plain enough. By depicting the primal father as a brutal tyrant, Freud has in a sense justified the murderous behavior of the sons.

The next explanation I want to consider is one proffered by Robin

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[42] In Jones, *Life and Work of Sigmund Freud*, 2: 354.

[43] *Ibid.*

Ostow—that *Totem and Taboo* may be "read as an allegory about Freud, his disciples, and the psychoanalytic movement":

> The personal characteristics of the primal father represent many of Freud's own traits. Some of the basic trends of the primal drama are observable in both the evolution of the psychoanalytic movement and in Freud's fears and fantasies for his personal future and that of his theory and his organization. Adler and Stekel were two of the growing sons whom Freud exiled from the horde . . . Freud's fantasy of being dismembered and incorporated by these creative, aggressive young men seems to contain some fear and a certain amount of masochistic pleasure. He sees his ultimate reemergence, with unprecedented personal control over a group of now cooperative, affectionate, and remorseful but still unindividualized spiritual sons . . . Freud imagined himself to be the totem of later generations of psychoanalysts; they could call themselves "Freudians," they would revere him, and they would function in an orderly organization.[44]

I feel that Ostow has correctly grasped a part of the picture, but that the political factors he cites were intermeshed with, and were partly determined by, the aforementioned psychodynamic factors in Freud himself.

Before concluding, I would like to mention one more factor—also political, but more speculative than Ostow's—that Ellenberger feels played a role.

> Actually, it is not impossible that the inspiration for *Totem and Taboo* came less from an unfathomable prehistory than from contemporary events. In those years Turkey, an anachronistic empire and neighbor of Austria, was ruled by the "Red Sultan," Abdul Hamid II. This despot had the power of life and death over his subjects, kept hundreds of wives in a harem guarded by eunuchs, and from time to time massacred entire populations of his empire. In 1908 "the sons banded together against the cruel old man," the Young Turks rebelled and overthrew the Sultan, in order to start a national community where civilization and the arts could flourish. These events were watched with the keenest interest in Austria, more than anywhere else.[45]

To summarize, I have looked at Freud's most speculative idea, the primal parricide. Although some of my paper is, admittedly, speculative in itself, I have enumerated a list of factors which probably participated in the formation of the notion. My hypothesis is that although Freud had had certain cognitive experiences—an early encounter with Lamarckism and Haeckel's law, clinical work and thought (including a lifelong clinical and personal exposure to the Oedipus complex), reading of Robertson Smith, Darwin, Atkinson, and Frazer—which could conceivably add up to the parricide theory; it was the noncognitive factors—attitude toward the Brücke school, father conflict, and psychoanalytic politics—that provided the fuel, so to speak, for him to assemble the data in the way that he did.[46]

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[44] R. Ostow, "Autobiographical sources of Freud's social theory," *Psychiatric J University of Ottawa*, 1978, 2 171-172

[45] H Ellenberger, *The Discovery of the Unconscious* (New York: Basic Books, 1970), p 527.

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[46] For a critical survey of Freud's anthropological thinking, see my forthcoming book, *Freud and Anthropology: A History and Reappraisal* (New York: Psychological Issues Series of International Universities Press, in press [1980]).

"THOROUGHLY PRACTICAL": AMERICA'S POLYCLINIC MEDICAL SCHOOLS*

STEVEN J. PEITZMAN

In the early 1880s, a new species sprouted in the unkempt garden of American medical education. Neither flower nor weed, the newcomer called itself a "polyclinic medical school." The polyclinic school was generically at its beginning an amalgam of the German short clinical course and the familiar American urban dispensary. For a fee, it offered to practitioners courses, usually of six-weeks duration, mostly in surgery and the rising new specialties of neurology, pediatrics, ophthalmology, laryngology, and dermatology. Within a decade of the first appearance of such a school in 1882, polyclinics—allopathic, homeopathic, and even eclectic—opened in large cities from Boston to San Francisco. They obviously represented, in American medical education of the late nineteenth century, an idea whose time had come. Abraham Flexner later termed the polyclinics, with evident contempt, "undergraduate repair shops," and historians, while not entirely overlooking these schools, have since viewed them only briefly, and usually through Flexner's eyes.[1]

This paper will try to show, by describing the early polyclinics' programs, faculties, and students, that these institutions responded pertinently to one perceived need in the larger demand for reform of medical education in America. The three earliest, and as it turned out, strongest schools—the New York Polyclinic, the New York Post-Graduate Medical School, and the Philadelphia Polyclinic—will serve as case studies.[2] A bias is inherent in this approach: many of the other schools were shoddy and deservedly ephemeral. Still, the influence and historical meaning of an institutional form will often derive from its best examples, rather than from an average.

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[1] Abraham Flexner, *Medical Education in the United States and Canada A Report to the Carnegie Foundation for the Advancement of Teaching* (New York Carnegie Foundation, 1910), pp. 174-177, Robert P. Hudson, "Abraham Flexner in perspective," *Bull. Hist Med.*, 1972, *56* 545-61, Rosemary A. Stevens, "Graduate medical education: a continuing history," *J. Med. Educ.*, 1978, *53* 1-18.

[2] Some of the schools adopted the name "post-graduate," rather than "polyclinic."

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Recent available scholarship makes unnecessary more than a brief prefatory discussion of medical education in postbellum America.[3] At the typical nineteenth-century medical school, students paid for and got lectures but little else; this was true even of the better schools and remained so at least up until the early 1890s. Undergraduate "clinics" consisted of dimly visible demonstrations in large amphitheaters, while teaching at the bedside or dispensary occurred only sporadically. The preceptorship, begun usually before matriculation at a school of medicine, was intended to enlighten the student in the daily arts and skills of medical practice, but its worth obviously varied with the ability and interest of the master. Relatively few students entered preceptorships in the last decades of the nineteenth century, and the additional (third) year of medical college was rarely a superior substitute. So the callow medical graduate of 1880 might well own both a diploma and a troubling awareness of how trifling was his knowledge of basic, practical medicine. But he had even more cause for anxiety: new specialties, with their 'scopes and electric machines, seemed current and progressive, yet these had been barely touched upon in the interminable undergraduate lectures.

The graduate could, however, choose several remedies for his deficiencies. He might matriculate at a second undergraduate medical college, and indeed nineteenth-century American doctors often acquired two M.D.s.[4] This redundant effort promised little advantage. A few new practitioners could obtain positions as internes or residents in a hospital. Although almost surely useful, this training was available to only a small minority until nearly the turn of the century. Many graduates, of course, went to Europe for the short clinical courses in Vienna and Berlin.[5] Some American cities before 1880 also offered a small miscellany of postgraduate clinical training opportunities. There were occasional private courses in anatomy and specialties; teaching at some of the numerous dispensaries; short courses for graduates given by a few undergraduate medical schools, such as those of the University of Pennsylvania and New York University; and instruction at specialty (e.g., ophthalmic) hospitals. These diverse sources of further training were most readily available in New York City.

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[3] See, for example, Martin Kaufman, *American Medical Education: The Formative Years 1765-1910* (Westport, Conn.· Greenwood Press, 1976), and Hudson, "Abraham Flexner."

[4] An observation made by Lisabeth Holloway, M.S. in L.S., during her compilation of data on nineteenth-century American physicians for a proposed directory.

[5] Thomas N. Bonner, *American Doctors and German Universities A Chapter in International Intellectual Relations, 1870-1914* (Lincoln: University of Nebraska Press, 1963)

Thus the New York Polyclinic and the New York Post-Graduate Medical School did not arise out of a postgraduate vacuum.[6] The idea for a formal organization to teach *only* graduates (i.e., practitioners) hung so thickly in the air in New York City by 1882 that to assign priority to one school is impossible, but also of little importance. A group of prominent physicians associated with that city's three conventional, undergraduate medical schools and with the DeMilt Dispensary apparently met in the late 1870s to establish a postgraduate clinical school. To be called the "Polyclinic," the facility lived then only in their plans and imaginations. Meanwhile, a young surgeon named John Allen Wyeth (1845-1922) also saw New York City as a favorable location for reform of medical education. Wyeth was an 1869 graduate of the Medical Department of the University of Louisville. Sensing the inadequacy of his training, he had abandoned his first attempt at practice in order to seek further instruction in New York and Europe. He settled eventually in New York and refined his ideas on medical education. In 1878, he proposed to J. Marion Sims, Abraham Jacobi, and others that they help him establish a *four*-year medical school, open only to college graduates, in which hospital and dispensary work would fill the fourth year. He estimated that at least $100,000 would be needed to endow such a commercially unthinkable school. Unable to raise this enormous sum, Wyeth eventually managed to found instead the New York Polyclinic Medical School (its relation, if any, to the proposed "polyclinic" of the DeMilt Dispensary group is uncertain). Wyeth's New York Polyclinic offered to holders of the M.D. short courses in nine divisions of medical practice. These were, in present-day terms, surgery, dermatology, gynecology, pediatrics, laryngology, ophthalmology, medicine, neurology, and orthopedic surgery. Joining Wyeth on the new faculty were gynecologist Paul Mundé, pediatricians John H. Ripley and L. Emmett Holt, laryngologist Louis Elsberg, ophthalmologist Emil Gruening, neurologists Landon Carter Gray and M. Allen Starr, and surgeons Arpad G. Gerster and Virgil P. Gibney.

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[6] For the founding and early history of the New York schools, see James J. Walsh, *History of Medicine in New York*, 5 vols. (New York: National Americana Society, 1919), 2: 573-93 (New York Post-Graduate Medical School) and 594-610 (New York Polyclinic Medical School); W[infred] Morgan Hartshorn, *History of the New York Polyclinic Medical School and Hospital* (New York: n.p , 1942); Thomas J. Harris, "History of post-graduate medicine in New York City," *Bull. N.Y Acad Med.*, 1929, *5* 789-801, John Allen Wyeth, *With Sabre and Scalpel* (New York. Harper and Brothers, 1914), pp. 327-30, 461-66, *Idem*, "A contribution to the history of medical education in the United States," *JAMA*, 1916, *66*· 447, "Only a small sum needed [to complete the Post-Graduate Hospital]," *New York Times*, 22 October 1893, p 17, col. 1.

Also in 1882 the "supplemental" or "post-graduate" faculty of the New York University Medical College, which had taught specialty courses for seven years, broke away from its parent institution. This group consisted of neurologist and former surgeon-general William A. Hammond, Daniel B. St. John Roosa (an eye and ear surgeon), urologist Frederic R. Sturgis, surgeon James L. Little, dermatologist Henry Piffard, gynecologist Montrose Pallen, and surgeon-anatomist John W. S. Gouley. Roosa, Hammond, and Sturgis seem to have been the leaders of the schism. As the New York Post-Graduate Medical School, most of these men, augmented by several additional specialists, began to offer clinical teaching in November of 1882.

Philadelphia was not far behind.[7] In that city, the old Philadelphia School of Anatomy had been revived in 1878 by young surgeons John B. Roberts (1852-1924) and H. Augustus Wilson (1853-1919), and physician-chemist Henry Leffmann (1847-1930). It offered "practical courses," to practitioners and medical students, in anatomy, surgery, bandaging, medical chemistry, physical diagnosis, and diseases of the eye and ear. Roberts possibly envisioned, as had Wyeth, launching a new full-scale medical school when, in 1881, he tried to obtain the Pennsylvania charter issued to the "Wister Medical College," a paper school which never actually operated. With the support of several senior Philadelphia physicians, Roberts and his friends expanded their work at the Philadelphia School of Anatomy into the new Philadelphia Polyclinic and College for Graduates in Medicine in March of 1883. Through it, the faculty offered short courses in operative surgery, general and orthopedic surgery, diseases of the throat and nose, diseases of the chest, "applied anatomy and practical surgery," diseases of the ear, diseases of the mind and nervous system, clinical chemistry and hygiene, diseases of the skin, "diseases peculiar to women and children," diseases of the eye, genito-urinary and venereal diseases, and "pathology and microscopy." In his later reminiscences, Roberts credits neither Wyeth nor Roosa with priority, and does not acknowledge borrowing the term "polyclinic."

Since the purpose of this paper is not to provide elaborate biographies of these three schools—which had much in common—it will attempt from this point on to trace their common pattern of development and to describe the polyclinic phenomenon which they started.

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[7] For early history of the Philadelphia Polyclinic and College for Graduates in Medicine, see John B. Roberts, *A Retrospect* (Philadelphia: n.p., 1890), R. Max Goepp, "History of the Philadelphia Polyclinic," in *Founders' Week Memorial Volume*, ed. Frederick P. Henry (Philadelphia City of Philadelphia, 1909), pp. 366-70; John B Roberts to Alfred Darrach, 28 February 1881, in Roberts Letters, Library of the College of Physicians of Philadelphia.

Proposing to teach practical short courses, the polyclinic founders obviously needed plentiful patients, and rooms in which to treat and exhibit them.[8] Initially, the originators met this want in two ways. The faculty members usually held appointments at existing hospitals, to which they took their polyclinic pupils when feasible. Before long, however, the founding faculties of all three schools generated their own dispensaries. Rosenberg has pointed out that before the routine use of technical aids or adjunct personnel, the urban dispensary was cheaply run, efficient, and easily set up—all one needed were some doctors, a pharmacist, and some rented rooms. The early arrangements of the first three polyclinic schools tell of a hasty eagerness to get underway. The New York Polyclinic rented space on East 34th Street in "Glass Hall," a building of highly questionable pedigree, which had previously served at times as a police gymnasium and the home of a "variety show for men only." Within a few years, additional floors of this peculiar structure along with some neighboring tenement houses were leased. The New York Post-Graduate Medical School began classes and clinics in New York's College of Pharmacy building, next rented a tenement house, then settled in a former "old ladies' home" on East 20th Street. The Philadelphia Polyclinic rented and quickly outgrew one set of rooms, then in 1886 moved for a time to a converted four-story house at Broad and Lombard Streets. Growing popularity—with dispensary patients and with pupils—demanded the frequent moves and expansions. These well-attended dispensaries formed the heart of the polyclinic schools in their early years: their constant flow of outpatients perfectly suited the teaching of such specialties as dermatology, otorhinology, and neurology. Each branch of practice at a given school held its own clinic one or several days each week; together they justified the name "polyclinic" (many clinics).

Surgical instruction, however, required inpatient services, and the polyclinics soon fitted up rooms as wards and operating areas. The New York Post-Graduate provided beds by 1884 and in 1885 opened a Babies' Ward, later its object of special pride. The Philadelphia Polyclinic had inpatient beds by 1886, and the New York Polyclinic by 1889. By the 1890s, the institutions grew into true hospitals, though all continued to maintain large dispensary services which supplied the wards (later, some beds were for private, "paying" patients). This expansion from dispensary school into hospital school corresponded to another, more ambitious, round of physical improvement: the Philadelphia Polyclinic completed a new hospital in 1890, the New York Post-Graduate did so in 1893, and the New York Polyclinic built in 1897 and again in 1912 when it migrated from Manhattan's East to West Side.

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[8] For the growth of the schools, their buildings and hospitals, see, in addition to sources cited in notes 6 and 7, New York Post-Graduate Medical School, *Announcements* from 1883 through 1890, 1897, 1898; New York Polyclinic Medical School, *Annual Announcements* from 1883 through 1890; Philadelphia Polyclinic, *Announcements* from 1883 through 1902 and *Reports* for 1886, 1888, 1890-94. For the rise of the dispensary, see Charles E Rosenberg, "Social class and medical care in 19th-century America: the rise and fall of the dispensary," *J. Hist. Med.*, 1974, *29*· 32-54.

The much greater costs of building and running a hospital, as compared to those of a dispensary, soon forced the polyclinic officers into an endless and at times desperate hunt for private and public funds.[9] In the early years, the small amounts of money needed to start up and meet operating expenses of the school and dispensary came from contributions of the "board of corporators" and faculty members, and—at least in the New York schools—from student fees. But by 1888, the Philadelphia Polyclinic admitted in its *Annual Report* that funds were insufficient to hire enough ward nurses. In that year it applied to the Pennsylvania legislature for fifty thousand dollars; a tenth of this amount was eventually granted two years later. In the meantime, the Board of Corporators (a one-hundred dollar donation procured membership) was induced to grow, a Ladies' Aid Society formed to sponsor the inevitable annual "donation day" (which typically for that ceremony yielded all manner of objects from live ducks to machine tools), and the Charity Ball of Philadelphia agreed to make the Polyclinic one of its beneficiaries. All these sources of money, added to a mortgage on the old building, permitted ground breaking for the new hospital in 1890. But the *Report of the Eighth Year*, published in 1891, again appealed to its readers for funds while noting gratefully that a few dollars had been saved when Philadelphia's Board of Revision of Taxes placed the Polyclinic on the tax-exempt list. By 1893, busy faculty members such as prominent neurologist Charles K. Mills were spending days in Harrisburg requesting more state money. Throughout the 1890s and into the new century, the Philadelphia Polyclinic officers tirelessly pursued legislators, dowagers, and the school's own board members in their never-ending search for operating funds; as one trustee wrote in 1904, "The whole history of the Polyclinic has been a struggle to accomplish constantly increasing work in spite of lack of means." The early financial history of the two New York City schools was, as best as can be determined, similar, although they had more success with private philanthropy. Still, the New York Post-Graduate, trying to complete its new building, appealed publicly for funds in the *New York Times* in 1893; and reported with satisfaction the following year that a bill was under consideration to allow the hospital twenty-eight cents *per diem* for each infant in its Babies' Ward.

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[9] For the schools' financial struggles, see New York Post-Graduate Medical School, *Announcement of the Fourth Year*, 1885; Walsh, *History of Medicine in New York*, 2: 580-90, 597-602, Hartshorn, *History of the New York Polyclinic*, pp. 5-9, Philadelphia Polyclinic, *Reports*, 1888, 1890-94; letters of J. B. Roberts to H. Augustus Wilson, 21 March 1893, Charles K. Mills to Wilson, 22 April 1893, William Campbell Posey to J. Somers Smith, 8 December 1905, Franklin B. Kirkbride to Smith, 10 March 1904, and of other Polyclinic officers to Board members, legislators, private individuals, all dealing with fiscal needs, all in Polyclinic Papers, University of Pennsylvania Archives, UPC 50.2, package 3; *New York Times*, 22 May 1892, p. 9, col 3, 22 October 1893, p. 17, col. 1, and 16 January 1894, p. 8, col. 3.

Despite their financial difficulties, the three postgraduate schools grew and enjoyed increasing popularity with practitioners: by their tenth anniversaries (1892-93), the two New York schools each enrolled over four hundred pupils annually, while the smaller Philadelphia Polyclinic welcomed slightly over one hundred.[10] The faculties had grown huge as new departments proliferated and original departments (such as surgery, neurology, and otolaryngology) added small armies of adjunct professors and dispensary "assistants." House officers came next, as the operations enlarged. Each school published its own journal: readers could find lectures and case reports by polyclinic professors in *Philadelphia Polyclinic* (begun in 1883), *Post-Graduate* (1886), and *New York Polyclinic* (1893). These serials also contained editorials, book reviews, and news of their parent schools; no doubt they served partly an advertising purpose. At least one school, Philadelphia, in 1894 established a nursing school.

Even before the three original polyclinics had achieved such expanded dimensions, the idea rapidly spread.[11] A group made up of faculty members from several of Baltimore's conventional medical schools founded the Baltimore Polyclinic and Post-Graduate Medical School in 1884. With its "free dispensary under the exclusive control of the faculty," the

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[10] Figures are from the schools' annual announcements for the years cited.

[11] For polyclinic schools in cities other than New York and Philadelphia, see R. Kutner, "Post-graduate medical instruction, its present status and future objects," address delivered to the International Commission for Medical Post-Graduate Education, Budapest, 30 August 1909, quoted in part in Walsh, *History of Medicine in New York*, 2: 591; Illinois State Board of Health, *Conspectus of the Medical Colleges of America* (Springfield: 1886, 1891); Flexner, *Medical Education*, p. 175; John Duffy, ed., *The Rudolph Matas History of Medicine in Louisiana*, 2 vols. (New Orleans: Louisiana State University Press, 1962), 2: 392, 524-25, 542-43, Baltimore Polyclinic and Post-Graduate Medical School, *Announcement*, 1884, 1885; Chicago Polyclinic, *Annual Announcement*, 1892; *Index Catalogue of the Library of the Surgeon-General's Office*, ser. II, *4*: 742-81 (entries by city for announcements of various schools).

School offered four-week courses in the various specialty branches. In its second—and last—*Announcement* (1885), the Baltimore Polyclinic claimed to have served twenty-seven pupils and some twenty thousand dispensary patients during its first and only full year. Other ephemeral early postgraduate schools were: the College of Medical Practitioners, St. Louis (1882 to 1883-84); Cleveland Polyclinic and Post-Graduate Medical School (1884 to 1885); St. Louis Post-Graduate School of Medicine (1886 to 1889, merged into the Missouri Medical College); the Cincinnati Polyclinic (1886-87 to ?); the Boston Polyclinic (1885 to ?); the San Francisco Polyclinic and Post-Graduate School of Medicine (1889 to ?); and the Richmond Polyclinic (1885 to ?). The Chicago Polyclinic, and the Post-Graduate Medical School of Chicago, both founded in 1886, enjoyed a longer existence and were both sufficiently alive in 1910 to suffer a blast from Flexner.[12] One of the better "second-generation" examples was the New Orleans Polyclinic, founded in 1888. The names of two of its founding faculty members can be seen in the early student lists of the Philadelphia Polyclinic. The New Orleans Polyclinic staff, a distinguished group, included Rudolph Matas.

Not unexpectedly, the sectarian professions soon started their own postgraduate schools, incorporating when necessary certain adaptive adjustments. Although the "allopathic" polyclinics emphasized surgery and mechanical therapeutics (see below), the Philadelphia Post-Graduate School of Homoeopathics (sic), operating from 1891 to as late as 1899, taught no surgery whatsoever—only "the art of prescribing according to pure homoeopathic principles" was refined within its walls. A homeopathic post-graduate school might felicitously meet two special needs, asserted the Philadelphia School's faculty. First, three undergraduate years, if too few for the allopath, were surely inadequate for the homeopathic doctor, who must learn all of general medicine *and* the theory of homeopathy; and second, numerous regular physicians wishing to convert to homeopathy might do so efficiently in a postgraduate school, without repeating common, undergraduate elements.[13] The Philadelphia Post-Graduate School of Homoeopathics vaunted in its announcements the authorization to grant the degree of "Master of Homoeopathics" to those completing its course. New York City's homeopathic Metropolitan Post-Graduate School of Medicine offered in its 1895-96 announcement a program almost identical to those of the allopathic polyclinics. Included were courses in general and "orificial" surgery, otology and ophthalmology, and even electro-therapeutics.[14] At least one eclectic example, the grandly named Post-Graduate Polyclinic of Eclectic Medicine and Surgery, apparently existed briefly in Chicago.[15]

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[12] Flexner, *Medical Education*, p. 176.

[13] Philadelphia Post-Graduate School of Homoeopathics, *Annual Announcement*, 1895, p. 8. See also Burton Alva Konkle, *Standard History of the Medical Profession of Philadelphia*, ed. Frederick P. Henry, 2nd edition enlarged and corrected by Lisabeth Holloway (New York: AMS Press, 1977), pp. 369-70.

The above listing of postgraduate schools of the late nineteenth century is by no means comprehensive, and specifically omits the postgraduate divisions of undergraduate medical schools, and single-specialty (e.g., ophthalmic) schools and hospitals. Also, the publication of catalogues or announcements did not always imply that a given short-lived school noted above actually operated.

The announcements of the polyclinic schools—the main source of information about them—invite skepticism: what they offered sounds too good to have been true. The Philadelphia school, in fact, had to admit in its *Report of the 12th Year* (1894) that in response to some just complaints the faculty would make a "steadier effort" to secure "to pupils the complete fulfillment of all that it offered." Nevertheless, these course announcements deserve close examination. The continued ability of the three schools reviewed here to attract large numbers of pupils over several decades attests that the instruction promised in the catalogues must have been provided, at least in part. But more importantly, the subjects and manner of their instruction as proposed, and even the words and phrases used, tell us what (in the minds of the polyclinic faculties) potential practitioner-pupils needed or wanted. In this section, the coursework "as advertised" will be described.[16] Then an attempt will be made to synthesize from several faculty reminiscences a reasonable reconstruction of how some of the polyclinic professors conducted courses. Again, the models are mainly the New York and Philadelphia schools.

At their inception, the three institutions gave short clinical courses, usually of six-weeks duration, on the German model. After 1900 at least one, the Philadelphia Polyclinic, provided instead three-month courses. Students were invited to enroll for any single six-week course, for all or several courses for any six-week period, or for all courses for an entire school year (the "general ticket"). The New York Post-Graduate School pointed out that its schedule was arranged to allow students to attend without conflict the courses of "all Professors and Associate Professors," or to devote most of their time to one specialty area. Fees were usually fifteen dollars to twenty-five dollars for a single short course, and up to three hundred dollars for a year's general ticket.[17]

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[14] Metropolitan Post-Graduate School of Medicine (Homeopathic), *Annual Announcement*, 1895-96.

[15] Listed, along with many other postgraduate schools, in Illinois State Board of Health, *Medical Education and Medical Colleges in the United States and Canada* (Springfield: 1891), p. 169.

[16] Sources for this section are the annual announcements of the cited schools from 1883 through 1899; also, Philadelphia Polyclinic, "Reports on students and tickets issued," in Polyclinic Papers.

The course subjects included the divisions of practice already familiar by 1880: surgery, general medicine, diseases of children, gynecology, obstetrics, dermatology, clinical chemistry, diseases of the nervous system, ophthalmology, and various groupings within what now would be called otorhinolaryngology. Surgery dominated medicine. The three oldest schools each began with several professors of surgery and listed two or three distinct surgical courses under slightly different headings, such as "general and clinical surgery" or "operative surgery." By 1888, the New York Post-Graduate offered five separate surgical options. Its students were promised the right to follow around the surgeon of their choice as he operated or saw patients at the Post-Graduate and other hospitals.

Since the early years of the polyclinic schools happened to coincide with the period during which the germ theory gained wide American acceptance, it is not surprising that the announcements soon included bacteriology courses. The Philadelphia Polyclinic's *Announcement for the Sessions 1883-84* already proclaimed that Frederick P. Henry's course in "pathology and microscopy" would include "the methods of examining for and identifying *bacteria,*" but this school did not actually open a bacteriology laboratory and hire a skilled instructor, Joseph MacFarland, until 1894. The New York Polyclinic listed its first bacteriology course in 1886, and the New York Post-Graduate in 1888. In general, however, surgery, neurology, ophthalmology, pediatrics, and otolaryngology remained the essential nuclear subjects of the polyclinic programs. General medicine, pathology and laboratory science received by comparison meager attention.

The polyclinic professors seemed to concur fully on the best method of teaching the subjects: didactic lectures would be outlawed, patient contact made plentiful, tools and devices freely used, and everything kept practical—thoroughly practical. The descriptions of courses exude the word "practical." Otologic training would be "essentially practical," genito-urinary surgical instruction "purely practical," pathology and clinical medicine "eminently practical," and so on, monotonously, page after page in the catalogues. Although this incessant promise of perfect practicality may now appear anti-intellectual and pointedly "anti-science," in fact the authors of the polyclinic announcements were contrasting their courses not with science, but simply with lectures. Didactic lectures were the hated burden of undergraduate instruction; surely no sane practitioner would return to college merely to hear more of *them*. Thus the New York Polyclinic Medical School declared (in italics) at the beginning of its 1883-84 *Annual Announcement* that "didactic lectures form no part of the plan of instruction," while the New York Post-Graduate Medical School boasted that it gave "no lectures except clinical lectures, and no demonstrations without subjects and specimens." Matriculants would experience, instead of systematic lectures, daily contact with live patients. "An abundance of living material" would be "rendered available"; this assertion, in these or similarly callous words, recurs frequently in the announcements of the various schools. In support, each school carefully reported its previous year's sum of dispensary visits: 23,286 to the New York Post-Graduate in 1886 and 33,719 to the Philadelphia Polyclinic in 1887 were typical numbers. Patient contact would be not only frequent, but also close. Students would have the opportunity to examine and test new skills upon the "living subject." The New York Polyclinic's 1887-88 *Annual Announcement* made assurances that "the classes, however large, will be divided into sections of a limited number, or the number of clinics increased, so that the members will be brought into intimate personal contact with the patients, where the clinical features of each case can be minutely and leisurely studied and thoroughly understood." The Baltimore Polyclinic, in an unhappy choice of phrase, promised to bring its 1884 class "face to face with the various forms of genito-urinary and rectal diseases."

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[17] By way of comparison, total annual fees for the well-known conventional, undergraduate Medical Schools of New York and Philadelphia are listed as about $150 in their catalogues of the early 1880s.

The polyclinic announcements reveal a profound fascination with every kind of apparatus and technique, whether diagnostic, therapeutic, or merely instructional. Potential students may acquire, they are told, familiarity with the ophthalmoscope, otoscope, aural speculum, laryngoscope, vaginal speculum and other diagnostic tools. The New York Post-Graduate from 1886 required that those wishing to enroll for the eye and ear courses "provide themselves with otoscope, ophthalmoscope, and aural specula." By 1891, the Philadelphia Polyclinic proclaimed use of both the "cardiograph and sphygmograph." One finds in the catalogues of the polyclinic schools a curious near absence of any mention of drugs;

instead, every non-medicinal therapeutic measure appears. Electrotherapy for nervous and pelvic disorders is especially urged by each school. The student might also learn the use of therapeutic inhalation of gases, "compressed and rarefied air" and sprays; "lavage, gavage, hydrotherapy, aero-therapy and gymnastics"; gynecologic curettes and pessaries; Eustachian catheters and tracheostomy; plaster-of-Paris and orthopedic appliances; and Swedish massage. The New York Post-Graduate's *Annual Announcement* for 1887-88 reported Joseph O'Dwyer's appointment to the school to teach the technique of tracheal intubation which he had helped perfect for the treatment of croup and diphtheria. The Philadelphia school listed intubation as a subject a few years later. The polyclinic dispensaries did, of course, dispense; this is demonstrated by the huge numbers of prescriptions reported in the annual reports. Furthermore, the average practitioner taking a polyclinic course almost surely was more interested in the latest drugs and tonics than in medical gymnastics or sprays of rarefied air. Yet pharmacology, or even simple drug use, received almost no attention in the course prospectuses.

How closely did the actual courses agree with their catalogue specifications? Recollections of polyclinic students of the period would be the ideal source to answer this question, but locating any such materials presents an almost impossible task because of the huge number of widely distributed students.[18] Some brief reminiscences of several faculty members are available, however, and from them one may cautiously infer something of the day-to-day operations of the classes.[19] First, it is evident that despite all denials, the professors did, in fact, lecture. Some of the lectures were even of the strictly forbidden "didactic" type: New York Polyclinic pediatrician Charles Kerley admitted resorting to this undesirable species of instruction when poor weather kept away scheduled patients. John Madison Taylor, of the Philadelphia Polyclinic, lectured systematically on childhood anatomy, physiology, and nutrition; and—when he happened to have a large number of pupils entering together—polled his group to

[18] Nevertheless, an attempt to find such materials would be a worthwhile goal for others investigating the history of these schools.

[19] Faculty reminiscences are: Malcolm Campbell, "Recollections of an interne of the old Polyclinic Hospital," Charles G. Kerley, "Pediatric teaching at the New York Polyclinic in the early '90s," and Bernard Sachs, "Some reminiscences of the Polyclinic in the eighties and nineties," all in Hartshorn, *History of the New York Polyclinic*, pp. 40-55; Arpad Geza Gerster, *Recollections of a New York Surgeon* (New York: Paul B. Hoeber, 1917), pp. 219-22, John Madison Taylor, "Postgraduate teaching in diseases of children," *Bull Amer Acad Med.*, 1896, *2*. 564-71; Charles L. Dana, "Hammond, the teacher," *Post-Graduate*, 1900, *15*. 619-22.

learn what "special" series of topics they might wish reviewed. But for the most part the teaching in the polyclinic schools was in the form of what Kerley called a "clinical conference." The professor discussed a particular disease or remedial measure, then showed preselected illustrative patients drawn from the dispensary or wards. Presumably, if the class was not too large, students did enjoy the opportunity to briefly examine the forbearing subjects. In other specialty courses, patients were simply chosen from those who happened to be in the dispensary on a given day; in this case, the professor examined patients and extemporized on their diseases before the class. Students would be asked their opinions on diagnosis and treatment. To what extent matriculants, after these demonstrations, then spent time in the dispensaries seeing patients under the assistants' supervision no doubt varied with individual initiative.

Although the surgeons, such as Arpad Gerster of the New York Polyclinic, also gave clinical conferences, serious surgical students wanted operative experience. Those who qualified were formed, at the New York Polyclinic, into the "four or five numerous and more or less disorderly sets of assistants belonging to the various chairs," which Gerster recalled crowding the operating areas.[20] Gerster also remembered teaching an operative course on the cadaver. The polyclinic setting likely proved most useful—and practical—for those knowledgeable students with some experience who sought out work under a particular teacher (as, for example, William Mayo with Gerster); and for those willing to work extra hours in the busy dispensary. These were probably only a minority of the pupils.

The faculty names found in the polyclinic school announcements compel attention. Most of the founding professors were young, talented, well-trained (often in Europe), and destined to reach prominence in a specialty. Some achieved professional prominence while they taught at a polyclinic, others subsequently. Yet despite their attainment of fame and influence, many early polyclinic faculty members were identifiably "outsiders." Some were foreign-born (Louis Elsberg, Arpad Gerster, Emil Gruening, Paul F. Mundé, Abraham Jacobi); and not a few were of Jewish birth (Jacobi, Elsberg, Bernard Sachs, Jacob Solis-Cohen, Henry Leffmann, David Riesman). Often the polyclinic specialists further separated themselves from their cities' regular, conservative medical communities by adopting "progressive," or at least dissident, viewpoints on such issues as the entrance of women into medicine, or the recognition of sectarians. Some of these characteristics of the faculty men warrant further explication.

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[20] Gerster, *Recollections*, pp. 221-22

The mean ages of the initial faculties of the three schools at the time of their founding were: New York Polyclinic, thirty-eight years; New York Post-Graduate, forty-two years; Philadelphia Polyclinic, forty-three years.[21] It is not surprising that these physicians would be, like the specialties they practiced, relatively young. By comparison, the mean age of full professors (excluding those *emeriti*) in 1882 for the College of Physicians and Surgeons of New York was forty-seven, and for the University of Pennsylvania Medical Department, fifty-one. A large number of these young polyclinic professors had journeyed to Europe (usually Germany) for training, or were themselves transposed Europeans. Of ten initial professors of the New York Post-Graduate, four had studied in Europe, as had four of fourteen of the Philadelphia Polyclinic, and a remarkable nine of seventeen of the New York Polyclinic. These proportions are probably underestimates, since adequate biographical data are lacking for some individuals, who are thus considered not to have studied abroad. Furthermore, the excursions took place in the 1860s and 1870s, before such postgraduate visits were commonplace. Each of the three guiding "founders"—John A. Wyeth, Daniel B. St. John Roosa, and John B. Roberts—had studied for several years in Europe.[22]

A large number of polyclinic staff doctors in New York, Philadelphia, and New Orleans became distinguished in their fields.[23] Although a few of them—such as Abraham Jacobi, Christian Herter, and Joseph MacFarland—only briefly or adjunctively joined with a particular school, many more remained longtime chairholders. The schools enlisted the services of a high proportion of early American neurologists (William Hammond, Charles L. Dana, Charles K. Mills, Edward C. Spitzka); laryngologists (Louis Elsberg, Jacob Solis-Cohen, Joseph O'Dwyer); and pediatricians (Jacobi, L. Emmett Holt, Charles G. Kerley). The number of innovative surgeons also impresses: Wyeth made contributions in vascular technique, Gerster wrote an important work on asepsis, Gibney was an authoritative orthopedist, and other examples could be cited. Almost entirely absent, however, were the best experimental pathologists and bacteriologists who would from the 1890s onward form the core of America's dominant new class of scientific medical investigators.

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[21] Dates of birth of polyclinic professors, and of professors at Columbia and University of Pennsylvania, from: H. A. Kelly and W. L. Burrage, eds., *Dictionary of American Medical Biography* (New York: Appleton, 1928), biographies in Hartshorn's *History of the New York Polyclinic*, pp. 101-66; Konkle, *Standard History;* and other standard reference works.

[22] Information on polyclinic professors' European education, and other biographical details from: *Dictionary of American Medical Biography;* items cited in a bibliography of biographies and obituaries of Philadelphia physicians compiled by Holloway in her revision of Konkle's *Standard History*, pp. 15-32 of addendum; William E. Robertson, "Memoir of John B. Roberts," *Trans Stud. Coll. Phys. Phila.*, 1925, ser. III, *49*. lxxvii-lxxxii, Henry Leffmann, *Outline Autobiography* (Philadelphia: n.p , 1905); biographies in Hartshorn's *History of the New York Polyclinic*.

[23] Notable polyclinic teachers included. Neurology: William A. Hammond, Charles L. Dana, Edward C. Spitzka (NYPG); Bernard ("Barney") Sachs, Landon Carter Gray (NYP); Charles K. Mills, William Spiller (PP); Ear, Nose and Throat: Daniel B. St John Roosa, Joseph O'Dwyer, Clinton Wagner (NYPG); Louis Elsberg (NYP); Jacob Solis-Cohen (PP); A De Roaldès (NOP), Surgery· Robert Abbe, Robert Weir, Lewis Pilcher (NYPG); John A. Wyeth, Arpad G. Gerster, Virgil P. Gibney (NYP); John B. Roberts (PP), Rudolph Matas (NOP); Pediatrics· Abraham Jacobi, Mary Putnam Jacobi (NYPG); L. Emmett Holt, Charles G. Kerley (NYP); Medicine and Laboratory Science: Christian Herter (NYP); Joseph MacFarland, David Riesman (PP). *NYPG*, New York Post-Graduate School; *NYP*, New York Polyclinic; *PP*, Philadelphia Polyclinic; *NOP*, New Orleans Polyclinic.

In Philadelphia, the founding Polyclinic physicians endorsed a professional outlook which placed them in the progressive, or even "liberal," segment of that city's medical community.[24] This was most evident in the overlap between the faculties of the Polyclinic and the Woman's Medical College. John B. Roberts, Henry Leffmann, and Charles K. Mills—all devoted Polyclinic loyalists—by the late 1880s held chairs at the women's school, and actively supported the female physician's cause in conservative Philadelphia. Not surprisingly, at least twelve percent of the first 250 matriculants at the Philadelphia Polyclinic were women, mostly graduates of the Woman's Medical College; in this period, the Polyclinic practically served as the Woman's Medical College finishing school.[25] Roberts and Leffmann were also concerned with medical educational and licensing reform beyond only the question of women doctors. Both were active Fellows of the American Academy of Medicine, an organization of college-bred physicians which supported the college requirement for admission to medical school, and other reforms. Roberts—a lifelong "activist"—supported licensing reform, and ran (unsuccessfully) for public office. Leffmann, son of a Jewish father and Hicksite Quaker mother, was a self-proclaimed Single-Tax Democrat whose reformist ideas on medical education extended to the heterodox call for separate degrees for different specialties.

Several early faculty men of the New York Post-Graduate Medical

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[24] Robertson, "Memoir of John B Roberts"; Leffmann, *Outline Autobiography; Idem*, "A discussion of some of the questions of medical education and medical ethics," *Proc. Phila. County Med. Soc.*, 1884, 7. 18-39, "List of Fellows," *Bull Amer Acad Med*, 1899, *4*· 401-43.

[25] Philadelphia Polyclinic, *Announcement*, 1888, p. 14 ("List of physicians who have attended courses").

School allied themselves with the "liberal" position on a different issue—readoption of the American Medical Association's Code of Ethics in New York State. Opposing the Code, and specifically its restrictive prohibition of consultation with homeopaths, were Daniel B. St. John Roosa, Lewis Pilcher, and Frederick Sturgis, who published with several other New York physicians *An Ethical Symposium, Being a Series of Papers Concerning Medical Ethics and Etiquette from the Liberal Standpoint* (New York: Putnam, 1883). Abraham Jacobi and Robert Weir, who would later teach briefly at the New York Post-Graduate, also added their names in this volume to those opposing readoption. New Yorkers in the American Academy of Medicine included Charles L. Dana, Charles C. Lee, Henry Piffard, Lewis Pilcher, Thomas Satterthwaite, and Roosa of the Post-Graduate; and Wyeth, Arpad Gerster, and Virgil Gibney of the Polyclinic.[26]

Attracted by the subjects to be taught and by the names of the teachers, students flocked to the better polyclinic schools. Who were they? Since the three schools used here as models listed annually each of the previous year's matriculants, it is possible to learn something about them, and easy at least to make counts. From 1882 through 1899, the combined sum of matriculants at the New York Polyclinic, the New York Post-Graduate, and the Philadelphia Polyclinic amounted to over thirteen thousand; by way of comparison, one may recall Thomas Bonner's estimate that the total number of Americans who studied either laboratory or practical medicine in Germany from 1870 to 1914 was fifteen thousand.[27] The announcements included each student's state (and sometimes city or town) and, sometimes, his or her undergraduate medical school and year of taking the degree. An investigation of one hundred names sampled from the first 250 students at the Philadelphia Polyclinic (from 1882 to 1889) easily verified the existence of almost all of them, and revealed that not a few went on to develop a substantial local reputation.[28] There is little reason to doubt that the names listed by the New York schools were also valid.

We can infer certain characteristics of the matriculants from the information given in the announcements.[29] To the Philadelphia Polyclinic came students mostly from Pennsylvania and nearby states, while the New York schools within a few years of their founding drew large numbers both from New York and every part of the United States and Canada. At least in the early years, when graduation dates were cited, matriculants were young recent graduates, not senior physicians long in practice: only 35 of the New York Polyclinic's first 161 pupils had been out of school over ten years. The pattern was similar in the Philadelphia school. The largest number of its students had graduated from the University of Pennsylvania, Jefferson Medical College, or the Woman's Medical College—easily the three strongest schools in that city. As already noted, the Philadelphia Polyclinic welcomed women freely. It also accepted homeopathic practitioners (about five percent of all students from 1896 through 1906) and admitted to its classes in 1895 Nathan Mossell, the first black to receive the M.D. from the University of Pennsylvania, and to win election to the Philadelphia County Medical Society. The first woman accepted into Philadelphia's County Society, Mary Willits, also attended Philadelphia Polyclinic courses and worked as an assistant to Charles K. Mills in its dispensary.

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[26] "List of Fellows," *Bull. Amer Acad. Med.*, 1899, *4:* 401-43.

[27] By 1900, the New York Graduate had taught 7,089 pupils, the New York Polyclinic about 6,000, and the Philadelphia Polyclinic about 1,200 (figures from their announcements and reports). In arriving at a sum attendance of "over 13,000" by 1900, I have arbitrarily reduced the calculated total by 1,000 to allow for physicians attending in more than one year, and for names duplicated in obvious clerical error Bonner's well-known estimate is, of course, from his *American Doctors and German Universities*

[28] The documentation of names of Philadelphia students was kindly performed for the author by Lisabeth Holloway, using medical directories and other standard sources

But the most famous polyclinic students were undoubtedly the Mayo Brothers. Both William and Charles Mayo repeatedly came to New York between 1884 and 1890, enrolling at the New York Post-Graduate and the New York Polyclinic at various times. They did so specifically to work under such affiliated surgeons as Arpad Gerster, Robert Abbe, and Robert Weir.[30] Another illustrious polyclinic student was Mary Putnam Jacobi: though herself a lecturer on childhood diseases at the Post-Graduate for several years, she also assumed the role of student to learn neurology through the clinical lectures and dispensaries of Charles L. Dana (at the Post-Graduate) and Barney Sachs (at the Polyclinic).[31]

For the most part, of course, the students fail to emerge from the anonymity of the long lists of names in the announcements. To further assess their motives, characteristics, and interests, we must again turn to comments by their teachers. Since these scattered recollections cannot be forced into the form of a balanced analysis, it will be best to simply let the professors speak in turn for themselves. Charles C. Lee, gynecologist at the New York Post-Graduate, reported in 1888 that "in each case that I have investigated, the practitioner anxious to brush up any one or all of these subjects has only been made aware of his shortcomings by some unexpected case in his practice. . . . While the majority of the matriculants [at the Post-Graduate] take the general ticket or schedule—being general practitioners—nearly all incline toward some special study and seek to spend most of their time in that with the view of ultimately making it a specialty in practice."[32] Lee noted that surgery was the most popular course, laboratory pathology and electrotherapeutics the least requested. Joseph MacFarland of the Philadelphia Polyclinic also found few laboratory students during his short, lonely career at that school.[33]

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[29] Students' names, graduation dates, undergraduate medical schools, etc., from: New York Polyclinic, *Annual Announcement*, 1883; Philadelphia Polyclinic, *Announcements* 1883 through 1889, 1896. For a brief biography of Nathan Mossell, see Herbert M. Morais, *The History of the Negro in Medicine* (New York: Publishers Company, 1968), pp. 79-82. For Mary Willits, see Steven J. Peitzman, "The quiet life of a Philadelphia medical woman: Mary Willits (1855-1902)," *J. Amer. Med. Wom Assn* , 1979, *34* 443-60. A "List of homeopathic practitioners who enrolled at the Philadelphia Polyclinic for the ten years ending 1 July 1906" is in the Polyclinic Papers.

[30] Helen Clapesattle, *The Doctors Mayo* (Minneapolis· University of Minnesota Press, 1941), pp. 223, 236, 274.

[31] "Remarks of Charles L. Dana," in *In Memory of Mary Putnam Jacobi, January 4, 1907* (New York: n.p., 1907), p. 36.

Arpad Gerster, writing in his 1917 autobiography, seems to make contradictory statements about his students, the years perhaps having dulled the sharpness of his memory. "The teaching, as demanded by the advanced men who composed our classes," he wrote, "was a great pleasure. It taught one to address an assembly of critical listeners. . . . Many of the audience were experts." But he also admitted that "most of them were keen on therapy, but few manifested deep interest in pathology or diagnosis."[34] Other faculty men recognized this focus on therapy. Charles G. Kerley, of the New York Polyclinic, in his "analysis of the men on the benches . . . saw an eager body of physicians who had been in active practice, some for several years, and who knew what they wanted—instruction of a nature to make them better practitioners in their respective fields of medical practice."[35] While Kerley found many students "pathetically" attentive and eager for training, others on the benches scanned newspapers. John Madison Taylor, pediatrician at the Philadelphia Polyclinic, thoughtfully described his teaching and students to the American Academy of Medicine in 1896. He, like Gerster in New York, saw his students as "all desiring to acquire details of treatment. Many of them are willing to learn diagnosis or clinical comparisons rather superficially. . . . I do not find that the students, as a rule, are particularly interested in the bedside study of children with the thoroughness of observance of the individual case which this involves, but prefer a rapid rotation of cases, such as can be seen in our dispensary service daily."[36] Taylor did allow, however, that "a very small proportion of my graduate students" did seek out more serious, detailed instruction.

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[32] Charles Carroll Lee, "The necessity for post-graduate instruction in the present state of American medical education," *Maryland Med J*, 1888, *20*. 121-24.

[33] Joseph MacFarland, "The beginnings of bacteriology in Philadelphia," *Bull Inst Hist Med*, 1937, *5* 176-77.

[34] Gerster, *Recollections*, pp. 219-22.

[35] Kerley, "Pediatric teaching," in Hartshorn, *History of the New York Polyclinic*, pp 53-54

One may tentatively conclude that the majority of polyclinic matriculants were attempting to catch up—to see the illustrative patients they had not seen in the undergraduate college; to learn something of a specialty and its instruments before everyone else had already done so. And above all, since their future patients would demand prescriptions and not dissertations on pathology, a familiarity with the newest remedies and fashionable therapeutic devices had to be acquired speedily. The student who wanted learning of more substance was perhaps a *rara avis,* but indeed such occasionally appeared, no doubt carefully selecting the school and professor, and forming an "élite of distinguished intellects" as Gerster termed some students at the New York Polyclinic.

Conclusions. The large student enrollments during their early decades of operations did not foretell long independent lives for the polyclinics. In 1906, the New Orleans Polyclinic became the postgraduate division of Tulane University School of Medicine. The Philadelphia Polyclinic joined the Medico-Chirurgical College in a merger with the University of Pennsylvania in 1917, forming the University's clinical postgraduate appendage and Graduate Hospital. John A. Wyeth in 1918 offered his much disrupted Polyclinic (the United States government had taken it over during World War I) to Columbia University; despite near agreement, the transfer was never accomplished. The New York Polyclinic continued as an independent hospital until a merger with the French Hospital in 1972 preceded its humiliating bankruptcy and demise in 1976. The New York Post-Graduate School and Hospital became the "University Hospital" of New York University-Bellevue Medical Center in 1948.[37] Independently or as a university division, each of these four schools maintained in some fashion its tradition of offering short-course, graduate training. As the twentieth century progressed, such a function decreased in importance: the undergraduate clinical clerkship and the internship had greatly strengthened basic clinical instruction, while residencies provided specialty preparation of a depth obviously impossible in the six-week or three-month course.

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[36] Taylor, "Post-graduate teaching," pp 568-71

[37] Duffy, *History of Medicine in Louisiana,* 2: 543; Decree of Court of Common Pleas Number 5 of the County of Philadelphia (merger of the Philadelphia Polyclinic with the University of Pennsylvania, December, 1917), also, materials related to merger in Polyclinic Papers; Columbia University, "Report of the special committee on the Medical School in relation to the New York Polyclinic Medical School and Hospital, June 2, 1919," (photocopy kindly provided the author by the Office of the Dean, College of Physicians and Surgeons, Columbia University); New York University School of Medicine, *Bulletin,* 1953, *53*· 15. For the last days of the New York Polyclinic and French Hospitals, see items in *New York Times* of 20 April 1972, 9 October 1974, 10 May 1977.

But in the 1880s and 1890s the polyclinic was a novel, timely, and active phenomenon which can now be given several compatible historical interpretations. Most obviously, the polyclinics—built largely by specialists in imitation of European clinical courses they had attended—became the specialists' own schools. Practitioners in such areas as laryngology, ophthalmology, and pediatrics usually received only "adjunct," "clinical," or "special" faculty titles at well-established undergraduate medical schools in New York or Philadelphia.[38] They presumably lacked the prestige and power of the traditional full professorial chairs. It is also possible that some polyclinic teachers were excluded from the older schools on the basis of their youth, political beliefs, or Jewish or foreign birth. So the polyclinic schools, like specialty societies, probably helped cement the structure of American specialism.

This essay would suggest, however, that the polyclinic schools emerged not simply from expanding specialism, but also from the broad movement for reform of medical education; and, specifically, from one component of that reform little discussed by historians—improvement of practical training. Many superior physicians of the 1880s, including some polyclinic founders, urged stricter medical school admission and graduation requirements. Later would come the demand for Science and its Laboratory. But effective clinical teaching had also been scandalously scarce in American medical schools. Perhaps by 1880 the advances of surgery—the most "practical" branch of medicine—and the ascent of specialties dependent upon tools and techniques, had clarified this lack. Editorial comments and addresses in the medical literature of the 1880s and 1890s show that the need for better clinical and specialty teaching (and fewer turgid lectures) had gained some attention.[39] In part, the polyclinics responded to this need. Flexner would eventually complain (in 1910) that polyclinic training was *too* much "calculated to 'teach the trick' ";[40] and some polyclinic professors themselves, as we have noted, lamented that so many of their students desired mostly a shallow guidance in current therapeutics. Yet in any age, few doctors are scientists: to do the "trick" (procedure) properly and comfortably is an enduring imperative; to prescribe the appropriate drug in correct dose is each day's crucial test. Such skills must be acquired.

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[38] This statement is based on an inspection of catalogues of the following schools for 1882 or 1883: University of Pennsylvania, Jefferson Medical College, University of the City of New York Medical Department, Bellevue Hospital Medical College, and College of Physicians and Surgeons of Columbia College. The specialists were usually set off in print from the traditional full chairs by the use of subheadings, smaller type face, etc.

[39] For examples see Edouard C. Seguin, "Post-graduate instruction," *Arch Med., 1882, 8:* 158-68,

To teach practical medicine the polyclinic school founders chose the familiar mechanism of the dispensary divided into specialties, or medical branches—the "poly-clinic" itself. By establishing their dispensaries, modest undertakings though they were at first, the polyclinic originators recognized the *a priori* need for the clinical teaching facility in a medical school. This recognition was new in America: certainly many conventional schools had acquired affiliated hospitals or dispensaries over the years, but as afterthoughts. In the choice of the dispensary, a new indivisibility of reformed, structured clinical teaching and specialty dissemination is revealed. Dispensaries had long been organized by class of disease for convenience and efficiency, and clinical teaching, especially outpatient teaching, almost presupposes such a division. Simply stated, pedagogic chaos would result from a random confluence in one clinic under one instructor of glaucomatous septuagenarians, pregnant women, epileptic adolescents, and croupous infants. Modern clinical teaching, though now mainly hospital-bound, still adheres to the use of categorized material demonstrated by specialists.[41]

In the appropriate setting of the specialty clinic, the polyclinic professors—many of them distinguished, many reformers in their

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Lee, "Post-graduate instruction,", Daniel B St. John Roosa, "Medical New York—old and new," in his *The Old Hospital and Other Papers*, 2nd ed. (New York: William Wood, 1889), pp. 237-53; J. West Roosevelt, "Medical education and methods of instruction in medicine," *N Y. Med J*, 1889, *49*· 288-91, Elbert Wing, "Should there be elective studies in a medical course?", *Bull. Amer Acad Med*, 1894, *1*. 417-24; Bayard Holmes, "A proposal in the interests of higher medical education," *Med. News*, 1894, *64*. 316-18; Leffmann, "Questions of medical education."

[40] Flexner, *Medical Education*, p. 175.

[41] In this context, I include surgeons and internists as specialists In fact, many current academic surgeons and most academic internists claim a "subspecialty"—e.g , vascular surgery, cardiology. The conventional medical school's third-year program rotates the students usually through (internal) medicine, surgery, obstetrics, pediatrics, and psychiatry. Most schools now favor for the fourth year the "elective" system, by which students choose four- or six-week blocks in a large variety of clinical specialties or subspecialties (hematology, ear nose and throat, dermatology, etc.) This system, oddly, recalls the polyclinic six-week courses.

profession—attempted to provide a better source of clinical training than that which had existed before. Daniel B. St. John Roosa of the New York Post-Graduate, an "eye and ear" man, wrote in 1889 that "our object is not to make more doctors, but to improve those we have."[42] We cannot know how successful he and other polyclinic directors were in reaching this goal. The faint attention they gave to general "internal medicine" betrayed one serious narrowness of vision. We might also deplore an impatient practitioner-pupil of the 1880s who imagined that six weeks of instruction could make him a "specialist." There is some indication, however, that by 1900 many polyclinic students took three-month programs. An honest student still could not hope to master a special branch, though he might, even in so short a time, usefully acquire a working familiarity with the common ambulatory problems in, for example, ophthalmology or neurology. Again, at best this process could not approach, much less equal, broad undergraduate clinical training, a rigorous internship, and a residency. Furthermore, even at the better polyclinics, conventional lecturing at least partly replaced the promised practical tutorage.

So the polyclinic schools probably failed to produce what they nonetheless implicitly proposed: the re-forming of the average American practitioner into something new. The ideal polyclinic alumnus would replace the half-trained nineteenth-century doctor of old, who "took the case" and then dispensed calomel or a blue pill; or the surgeon who lanced abscesses and amputated legs mangled in horse-car mishaps. The polyclinic man would be different: he had tasted a specialty, watched the most advanced surgeons at work, and recognized—even if he could not quite use—all manner of instruments and mechanical techniques. He had swum in a sea of dispensary patients, seen examples of nearly everything (even touched a few), and discussed with experts the right diagnosis and immediate curative measures. He ignored altogether the laboratory—except perhaps to learn urinalysis or hear about the culture confirmation of diphtheria. He was surely not a scientist. But he considered himself a competent, up-to-date doctor, who knew what to *do*. His outlook was thoroughly practical.

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[42] Roosa, "Medical New York," p. 246.

USE BY PATIENTS OF A FRENCH PROVINCIAL HOSPITAL, 1895-1923*

EVELYN B. ACKERMAN
with the assistance of ENID A. LANG

For rural people of the nineteenth century, to go to the hospital was to admit defeat. The hospital was a place reserved for those without family, friends, or hope. When Edmonde Charles-Roux, in her appealing biography of the designer Coco Chanel, wanted to give the reader a sense of the deep-rooted despair and alienation of the Chanel family in the nineteenth century, she could think of no better item from their family history than the fact that for several generations, successive Chanels were born at the hospital.[1]

But until when did this attitude persist? Who in fact were the people who made use of rural French hospitals at the beginning of the twentieth century? Did physicians, faced with a new hospital patient, see a poor man first, or did they look primarily at his disease? To shed light on these and related questions, it is instructive to consider a typical rural hospital, the hospital of Mantes-la-Jolie.[2] In 1900, Mantes was a fairly large town, with a population of about 11,000.[3] Located thirty-five miles northwest of Paris on the Seine River, it was mainly an agricultural and commercial center, with no important industries. Mantes had possessed a hospital

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[1] Edmonde Charles-Roux, *L'Irrégulière ou mon itinéraire Chanel* (Paris: Grasset, 1974).

[2] The Mantes hospital is representative of the many small hospitals that dotted the countryside around Paris. Although there is no general study of nineteenth-century French hospitals similar to Brian Abel-Smith's *The Hospitals 1800-1948· A Study in Social Administration in England and Wales* (Cambridge, Mass : Harvard Univ. Press, 1964), Jean Imbert's *Les hôpitaux en France* (Paris. Presses Universitaires de France, 1966) provides a rapid overview of hospital history and the relevant legislation

[3] "Mantes" actually refers to two legally distinct communes, the larger commune of Mantes-la-Jolie and the contiguous commune of Mantes-la-Ville.

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"since the night of time," as the inventory of its archives quaintly put it, and certainly since the fourteenth century.[4] Called variously the Maison-Dieu, the Hôtel-Dieu, and, for a brief time during the revolutionary years, the hospital of humanity, the hospital for the sick at Mantes coexisted with a similar institution, a hospice for the aged and orphans. It is the first establishment only, the hospital for the sick, that will concern us here.

The earliest patient registers for the Mantes hospital date from the Napoleonic era, and they confirm the impression gleaned from local wisdom and literary sources that the hospital at the beginning of the nineteenth century was largely a medical facility of last resort. The only group of people who eagerly sought out hospital care was a special cohort—soldiers. Faced with even more distasteful alternatives, military personnel throughout France apparently flocked to hospitals; this possible malingering was a source of concern to the administration. Armand de Watteville, in a report to the Ministry of the Interior at mid-century, noted that half the French army had spent time in hospitals during 1847; "it is impossible," wrote de Watteville churlishly, "that 87,500 men, in the full flower of youth, really needed to enter the hospital."[5] The Mantes hospital of the mid-nineteenth century was not precisely inundated with soldiers, yet each year between 1837 and 1857, they accounted for between eighteen and sixty-six admissions, listed separately from the civilian patients. The Mantes hospital staff was vexed by the presence of a second subgroup of patients, prisoners from the local jail. After much prodding by the hospital administrators, the jail constructed its own infirmary, and so by the late nineteenth century, the presence of prisoners no longer disturbed the wards of the Mantes hospital.

Despite its proximity to Paris, the Mantes hospital, for much of the nineteenth century, lagged behind similar establishments in the capital in the sophistication of the care given its patients. In a report of 1861, Victor Auguste Bonneau, the chief physician, pointed out that no teaching took place at the hospital, and that the variety of cases seen was not very great.[6] Dr. Bonneau's wistful tone suggested that he might have preferred a position at the more prestigious teaching hospital of Versailles to his post at Mantes. In Versailles, Dr. Bonneau probably would have encountered more varied cases, simply because of the nature of the town's population. By the beginning of the Third Republic, Versailles attracted many retired people, and Dr. Bonneau might well have had the opportunity to observe more of the degenerative diseases of aging at Versailles than at Mantes. But competition was keen for hospital positions at Versailles. By the mid-nineteenth century, Versailles, the capital city of the department of the Seine-et-Oise, boasted twenty-two physicians, only a few of whom could be given positions at the hospital. Mantes, on the other hand, had only three physicians until the last decade of the nineteenth century, and two of them regularly served on the staff of the hospital.[7]

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[4] In 1854, Charles Poinsinet de Sivry, one of the administrators of the Mantes hospital and a former notary and justice of the peace, prepared an excellent inventory of the hospital archives. The inventory is preserved in the National Archives in Paris as well as in the Mantes hospital. A microfilm copy exists in the Departmental Archives of the Yvelines and the former Seine-et-Oise in Versailles

[5] Armand de Watteville, *Rapport à M. le Ministre de l'Intérieur sur l'Administration des Hôpitaux et des Hospices* (Paris, 1851), p. 23.

[6] Archives de l'Hôpital de Mantes (hereafter cited as AHM), Rapport sur le service médical de l'hôpital de Mantes pendant l'année 1861.

Nonetheless, by the 1890s, there were signs that the Mantes hospital was trying to emphasize its role as a center for medical care rather than a glorified warehouse for the sick poor, and to extend its services to reach new people. Some of these changes were dictated by law; others occurred in response to needs felt at the hospital. The Mantes hospital had originally been founded to provide care at no cost for the sick poor of the town of Mantes, and until the mid-nineteenth century, the great majority of its patients were Mantes residents. A national law of 1851, however, admitted paying patients to the hospital, thus opening its doors not only to the sick poor of the town of Mantes, but also to people from rural villages in the region.[8] Their expenses were to be paid by their village. In addition, according to the terms of the new law, private patients of any social class were welcome to use the hospital if there were room, although in fact, few people took advantage of this option. One organization that did make use of the expanded possibilities for hospital care was the railroad company which, during the 1841-1855 period, undertook construction of the Paris-Rouen and Paris-Cherbourg lines both of which crossed the Mantes region. By arrangement with the hospital, their injured workers were treated there. These workers were apparently a placid group, mainly English, but who adapted well to hospital life and did not even require the services of a translator.[9]

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[7] Archives Départementales des Yvelines (hereafter cited as ADY), 7 M 23, 7 M 24.

[8] For the text of the 1851 law on hospitals and hospices, see France Ministère de la santé publique et de la population, *Tables générales de la législation sanitaire française, 1790-1955*, 3 vols. (Paris: Imprimerie Nationale, 1975), 2. 255-257.

[9] The railroad lines were built by English companies who brought over their own workers.

Opportunities for hospital care were expanded once again in 1848, when the widow of M. Hay de Slade, a wealthy landowner from the village of St. Cyr-en-Arthies near Mantes, gave a sizable donation to the hospital. This legacy, the first of a series of similar bequests to the hospital in the second part of the nineteenth century, paid for the care of five sick rural people from the *arrondissement* of Mantes. Peasants were notoriously reluctant to enter hospitals, and local physicians and administrators were well aware of this. During the 1832 cholera epidemic, emergency medical facilities had been set up, both on inpatient and outpatient bases. But the people of Sèvres, twenty-three miles southeast of Mantes, were as fearful of hospitals as they were of cholera. In organizing the local cholera hospital, the town council of Sèvres did all it could to reassure people that no one would be compelled to be hospitalized in order to receive care, and it emphasized that all varieties of care would be given to the sick poor who chose to remain at home.[10]

If the idea of hospitalization for cholera or anything else was loathsome to many people, at least some physicians saw its advantages. In a hospital setting, patients would be closer to immediate medical care, and safely removed from what was considered the deleterious, distracting influence of family and friends. The mayor of Argenteuil, for example, was simply reflecting current medical opinion when he pointed out the superiority of hospital care for cholera over home treatment:

> Once the initial panic had worn off. . . , relatives and neighbors flocked to the bedsides of the sick who were at home, but instead of hiding their fears, they moaned and wailed out loud and in their heedlessness openly predicted the death of their friends. The cholera patient conserves his reason until the very end, and hearing the things people said around him, he exaggerated the gravity of his condition and lost all hope. . . .
>
> In the hospital, on the contrary, from which I had barred even the closest relatives and where there were only two doctors, the nursing sisters, and the other staff, there reigned the greatest calm. Far from stirring up the imaginations of the sick, we were only full of consolation, and we removed any discouraging influences.[11]

Dr. Bonneau held similar beliefs about the advantages of hospital care at Mantes; in his annual report for 1861, he noted that "country people themselves are beginning to understand that long and serious diseases have a greater chance of being cured in an environment where they are surrounded with intelligent and continual care."[12] Much like the mayor of Argenteuil, Dr. Bonneau looked to the hospital to create a total environment more sympathetic to medical care than a rural village.

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[10] ADY, 7 M 50, Rapport à M le préfet de Seine-et-Oise sur le choléra qui a régné dans le canton de Sèvres, par M. Chuvry, April 5, 1832.

[11] ADY, 7 M 50, Quelques réflexions sur le choléra-morbus sousmis à M. le préfet de Seine-et-Oise par le maire d'Argenteuil, November 22, 1832.

A second national law of 1893 further encouraged peasant use of hospitals by partially reimbursing rural communes for the expenses of their sick at hospitals such as the one at Mantes.[13] It also extended free hospital care to people who had not been officially certified as chronically indigent, but who had been rendered temporarily poor by the fact of their illness.[14]

Legal changes, pious donations of funds, and doctors' convictions about hospital care represent an ideal notion of the way the administrators, the medical staff, and the wealthy wanted the hospital to function. The physical modifications that took place during the nineteenth century at the Mantes hospital probably more closely reflect the actual situation in the hospital, and the real increase in demand for its services. In 1848, the hospital had had forty-eight beds; by 1901, there were seventy-one. The population of Mantes in 1848 was about 5300; in 1901, it was closer to 11,000. Population, in other words, rose by about 107 percent, the number of hospital beds by only about 43 percent. Although there is no reason to assume that the number of beds was increased strictly in response to demand, it would be difficult to conclude from these figures that hospital care had become extremely popular in the second half of the nineteenth century.

But the level of sophistication of care apparently did improve. The seventy-one beds of 1901 were divided among four separate services. Thirty-nine beds were on the medical service, eighteen on the surgical service, twelve in a special isolation unit for contagious disease cases, and two for psychiatric cases. The contagious disease unit was a development of the post-1850 period, as was the psychiatric division. Back in the 1830s, the hospital had constructed two padded cells for insane patients; by the turn of the century, however, psychiatric cases were kept only for observation, and then sent on to the larger hospital for the insane at Clermont. In 1891, the operating room was completely renovated, and in the early years of the twentieth century, the hospital hired a doctor to do anesthesiology to round out its staff of two other physicians.

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[12] AHM, Rapport sur le service médical de l'hôpital de Mantes pendant l'année 1861.

[13] For the text of the 1893 law on free medical care, see *Tables générales de la législation sanitaire française, 1790-1955*, 3: 488-493

[14] Even before this stipulation was formally enacted into law, it is probable that the poverty guidelines for admission to the hospital were often relaxed The patient registers of 1800-1825 and 1839-1855 listed many people whose occupations (carpenter, mason, cabinet maker) must have usually provided them with an adequate living In an analysis of a sixteenth-century Florentine hospital, Bernice J. Trexler found a similar situation. See her "Hospital patients in Florence. Sao Paolo, 1567-1568," *Bull Hist Med*, 1974, *48*· 41-59, especially p. 55

It is questionable, however, whether the population from which the Mantes hospital's patients was recruited appreciated these changes. These people did not leave written records of how they felt; the occasional diaries found, for people in the Mantes region in the late nineteenth and early twentieth centuries, concentrated on agriculture, the weather, and politics.[15] The physicians of the Mantes hospital and those of other Seine-et-Oise hospitals left few comments on their charges' views of hospital care after 1870, although careful listings of operative procedures became available just before the First World War. This weighting of sources toward the technical is noteworthy in itself. It may, of course, be only an accident of historical preservation, but it may also be a manifestation of what N. D. Jewson has termed the disappearance of the sick man from medical cosmology. "The emergence of Hospital Medicine," wrote Jewson in 1976, "severed the link between the concept of medical theory and the naive experiences of sufferers from disease. Medical cosmology no longer served as a two-way channel for the elucidation of personal qualities."[16]

Indeed, when the very doctors who staffed the Mantes hospital performed their functions in the public health service, they found time to comment on the reactions of their patients, rural people also widely separated from them by social class. In 1894, for example, Dr. Alexandre Stéphane Bonneau, son of Dr. Victor Auguste Bonneau, served as chief physician at the Mantes hospital. He also was the local epidemic doctor, and in that capacity reported on diphtheria in two villages near Mantes.[17] His report included technical data on the incidence and course of the disease, but it also featured some of the human elements of the epidemic: the parents' enthusiasm for a newly developed serum therapy for diphtheria, their brazen disregard for the problems of contagion, the bravery of a local schoolteacher. Outside the hospital setting, rural people kept part of their humanity in the eyes of Dr. Bonneau and his colleagues; once within hospital walls, they could easily become anonymous cases to the medical men who observed them.

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[15] For comments on some of these diaries, see Evelyn B Ackerman, *Village on the Seine. Tradition and Change in Bonnières, 1815-1914* (Ithaca and London: Cornell Univ. Press, 1978), pp. 135, 164-165.

[16] See N. D Jewson, "The disappearance of the sick-man from medical cosmology, 1770-1870," *Sociology*, 1976, *10:* 225-244, especially pp. 236-237. Also interesting on this point is Ivan Waddington, "The role of the hospital in the development of modern medicine: a sociological analysis," *Sociology*, 1973, *7* 211-224.

[17] ADY, 7 M 57, report of Dr Bonneau on diphtheria at Lainville, 1894.

Lacking direct patient testimony and lacking the reflections of the hospital's attending physicians, we can try to infer from the patients' actual behavior—in this case the ways they made use of the hospital—how they may have felt about hospital care. To assist us, we have the patient registers of the Mantes hospital for the years 1895-1898, 1908-1911, and 1921-1923 which are manageable only with the aid of the computer.[18] Computer printouts, it can easily be argued, are a cold and heartless way of assessing people's feelings about pain, suffering, and sometimes death. But in this case, as so often happens with the history of the inarticulate, quantifiable information is the only means of looking at the motivations of meek and powerless people.

The years in the sample include almost 4900 separate entries to the hospital. The average number of patients admitted each year was 343 for the 1895-1898 period, but rose to 616 a year for 1921-1923. The population of the hospital's catchment area did not rise correspondingly, and so it is possible to see in these figures an indication of an increase in the acceptability of hospital care in the first quarter of the twentieth century.

The patient registers contain considerable information about each person admitted: name, marital status, age, birthplace, residence, occupation, disease or diagnosis, length of stay, and whether death occurred. For several years, there is information about who paid for the hospitalization. Rich as these registers may seem, however, there are problems with them. Is the entry in the diagnosis column the main presenting symptom or is it the doctor's later judgment on the nature of the disease? Often, this is hard to tell, and as will be shown below, sometimes the social class and probable appearance of the patient seem to have influenced the care with which his complaints were scrutinized. The vagrant who entered the hospital with a decayed big toe may well have been suffering from advanced diabetes, but it was only his more middle-class fellow patient whose diagnosis would read "advanced diabetic gangrene."

A second problem is the hospital's mortality rate which, for the years studied, was 11 percent. But (and here I must include my good friend Albert Anne, former mayor of one of the larger villages near Mantes and resident of Mantes between 1911 and 1940), people who knew the Mantes hospital of the early twentieth century remember how patients were sent home to die so that the death need not be entered on the hospital records.[19]

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[18] The programs used in the analysis of these data were taken from the Statistical Package for the Social Sciences. The computer work was done by Marvin Blevins of the Lehman College Computer Center.

The population of the Mantes hospital's catchment area in 1911 was slightly over 40,000, with three-quarters of the people living in rural towns.[20] For every potential urban patient, in other words, there were three potential rural ones. Yet the people of the area did not utilize the hospital in these proportions, for rural patients outnumbered those from Mantes only slightly. Peasant reluctance to use the hospital had been noted by its administrators and doctors back in the 1860s, when a comparative study of the mortality of rural and urban patients had shown that rural people were twice as likely to die in the hospital as their fellow patients from Mantes. In 1861, Dr. Bonneau had observed that "most of these sick peasants come to our establishment only to die there, almost always afflicted with chronic, incurable diseases like cancer, heart trouble, paralysis, tuberculosis."[21] By 1910, however, his grandson Dr. Armand Alexandre Bonneau, who had followed in the family tradition at the hospital, could not make the same complaint, for peasants and Mantes residents had indistinguishable mortality rates in the hospital. Rural folk certainly did not flock eagerly to avail themselves of hospital care at the beginning of the twentieth century, but neither did they seek it out only for terminal disease cases.

The people who did enter the hospital, whether they were rural or urban, exhibited certain common characteristics. Generally, they were more alone in the world, less bound to the region by kinship ties or deep family roots than the typical resident of the Mantes area. Only 40 percent of the adults who entered the hospital were married; this figure does not correspond to the percentage of unmarried adults in the population at large. Nor can the high proportion of unmarried people be attributed to a prevalence of widows in the upper age brackets, for Mantes had a special hospice for old people, and only 15 percent of the hospital population was over 60 years old. Surprisingly few patients had been born in the region: only 8 percent in Mantes itself, and 23 percent in other parts of its *arrondissement*. Fewer than a third, in other words, had local roots older than one generation. By contrast, almost 15 percent of the patients had been born in one of the five departments that formed the old province of Brittany, a backward, impoverished area that saw great emigration to other parts of France in the late nineteenth and twentieth centuries. By the criteria of both marital status and birthplace, then, the hospital patients appear to be a more isolated group than the residents of the area as a whole.

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[19] Albert Anne, personal communication, January 7, 1979.

[20] ADY, 9 M 225. For a list of the catchment areas of the major hospitals of the department of the Seine-et-Oise, see Recueil des actes administratifs (Recueil spécial #4), Assistance publique, *Instructions sur les divers services hospitaliers d'assistance publique du département* (Versailles, 1895), located in the Archives Départementales des Yvelines in Versailles.

[21] AHM, Rapport sur le service médical de l'hôpital de Mantes pendant l'année 1861

Finally, 10 percent of the patients had no fixed domicile at all. Although the numbers of these homeless vagrants had declined greatly since the mid-nineteenth century, their presence serves as a reminder of the loneliness and tragedy behind many of these cases that are so easy to quantify. Yves-Marie Boubonny, for example, entered the hospital in May 1895. His presenting complaint was albumin in the urine. At the time of his admission, this twenty-seven-year-old Breton young man lived in the village of Bonnières, eight miles away from Mantes, where he worked as a day laborer. He stayed in the hospital for two weeks, but reentered the next month suffering from nephritis. By then he had left Bonnières, for he probably was too sick to work, and had no family there. Classified now as a vagrant, he died within two weeks of his second admission.

The patients at the Mantes hospital had a wide variety of illnesses and symptoms. The International Standard Disease Classification was both too complex and too modern to be used in the analysis of these patients, and Enid A. Lang created a different set of diagnostic categories that was more applicable to these turn-of-the-century patients. With 93 percent of the diagnoses known, the largest single category was obstetrics, which accounted for 11.5 percent of the cases. This was a departure from the mid-nineteenth century, when parturient mothers were not admitted to the hospital at all. Deliveries at the hospital were performed by a midwife who was responsible to the head doctor. But giving birth at the hospital was hardly a desideratum for local women. Many maternity patients were unmarried; here, perhaps more than in any other area, statistics are suspect. When Chanel's biographer wrote of the family's repeated experience with hospital childbirths, she detailed the elaborate fictions created to give the impression of a traveling father, an absent father, anything to allow the maternity patient to be entered as a married woman. Chanel's family was from southern and western France, fairly traditional regions, where such conventions were more important than in the Paris area. Well over a third of the maternity patients at the Mantes hospital flatly declared themselves as unwed mothers, although in light of the Chanel example, we should perhaps increase this figure somewhat. As time went on, more rural women began to come to the hospital for childbirth; 32 percent of all births in the 1895-1898 period had been to rural women whereas by 1921-1923, this figure increased to almost 50 percent. Still the overall number of hospital births was low, and popular acceptance of the hospital for childbirth was to come only later in the twentieth century.

Diseases of the respiratory tract accounted for another 8 percent of all admissions. Almost every fourth respiratory disease patient had pneumonia. These pneumonia patients included more old people than the patient population at large; 25 percent of them were over 60 years, as opposed to 15 percent for the overall hospital population. Among these aged pneumonia patients, the death rate was 50 percent; for pneumonia patients in general, it was 38 percent. Slightly more men than would be expected entered the hospital with pneumonia, but male and female death rates from it were similar.[22]

Such was not the case with the bronchitis patients, and an exploration of the possible explanations for this phenomenon sheds light on the complexities and pitfalls of working from hospital records. The diagnosis "bronchitis" was given in 224 cases, or in slightly more than half of all the respiratory disease cases. Although morbidity was higher for men than for women (along the same lines as it had been for pneumonia),[23] female mortality (20.4 percent of all cases) was strikingly higher than male (9.7 percent of all cases). Did women defer hospitalization until they were gravely ill? Did family responsibilities, for example, encourage them to stay at home until the last possible minute? At mid-century, Armand de Watteville had suggested greater reluctance among women than men to enter hospitals, but it would be difficult to invoke this argument solely for the disease of bronchitis. Indeed, between 1895 and 1923, there was a slight increase in hospital use by women, both for obstetrical and non-obstetrical reasons.[24] A more helpful explanation involves a consideration of the bronchitis diagnosis. Bronchitis could have signified a pneumonia of the apex of the lungs, and thus many of the bronchitis designations could also fall into the pneumonia category. Moreover, all bronchitis is not necessarily the result of an infectious process; much of the bronchitis that killed women at the Mantes hospital might have been the end stage of breast cancer or of embolisms.

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[22] Excluding maternity patients, the hospital population was 63.6 percent adult male, 29 3 percent adult female, and 7.1 percent pediatric. Of the pneumonia cases, 72.8 percent were male and 19.6 percent female. Adult male mortality from pneumonia was 34.3 percent; female was 38.8 percent.

[23] Of the bronchitis patients, 73.7 percent were adult male and 21 9 percent adult female.

[24] Non-maternity adult female patients formed 19.2 percent of the hospital population in 1895-1898, by 1921-1923, they accounted for 33.4 percent. Maternity patients increased in absolute number between 1895 and 1921 (after having fallen in the 1908-1911 period), but remained proportionately constant, at 12 percent of all patients

Tuberculosis, wrote Dr. Broussin, the epidemic doctor of the Seine-et-Oise in 1909, was a "frightful affliction of humanity, far worse than cholera or plague."[25] Although tuberculosis accounted for only 4 percent of hospital admissions, once a patient entered the Mantes hospital with tuberculosis, he was more likely to die there than patients with any other diagnosis. Almost half the tubercular patients died in the hospital, usually after stays of less than two months. For these people, the time-honored image of the hospital as a place where one went to die appears to have held true. Concern about tuberculosis as a public health problem, as Dr. Broussin's comment indicated, reached a peak in the years before World War I; almost half the 206 tubercular patients admitted in the years under consideration here entered between 1908 and 1911. The 1921-1923 period saw very few tubercular admissions, not because of any spectacular progress in the treatment of the disease, but probably because people made increasing use of governmental provisions for financial support for care in sanatoria.

Orthopedics, including the many fractures that should be regarded as an occupational disease of construction and agricultural workers, accounted for 8 percent of the admissions. That certain occupational groups were significantly more at risk for fractures than the general population can be seen in Table 1 which compares the percentage of construction workers, metal workers, and transportation workers in the patient population at large and in the group of 201 patients admitted with fractures.

TABLE 1
PERCENTAGE OF THREE OCCUPATIONAL GROUPS IN THE GENERAL PATIENT POPULATION AND AMONG THE FRACTURE CASES, 1895–1923

	% in General Patient Population	% among Fracture Cases
Construction	8.7%	14.4%
Metal	2.7%	7.5%
Transportation	4.4%	10.9%

Employers in these fields, aware of the risks to their workers, regularly found themselves paying for hospital treatment of men injured on the job.

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[25] ADY, 7 M 58, Rapport sur l'état sanitaire du département de Seine-et-Oise pendant l'année 1909.

Even with the inadequate information on payment for hospital care available,[26] every fifth fracture patient (and this is a minimum figure) had his expenses paid by his employer. Frequently, this was the railroad company. Fractures were largely a male diagnosis; barely every tenth fracture patient was a woman.

Trauma, especially the bruises and contusions produced by agricultural accidents and other work, but also by the numerous brawls that livened up long days in the countryside, accounted for another 7 percent of all admissions. The proportion of trauma cases did not vary over time, and thus the role of the Mantes hospital as a sort of regional emergency room appears clearly. New forms of trauma admissions appeared as technology became more widespread; thus, four of the five automobile accident cases occurred in the 1921-1923 period.

If the proportion of trauma patients remained constant over the 1895-1923 period, such was not the case with two other categories of admissions, surgery and "fevers." Table 2 shows the changes in the patterns of surgical admissions between 1895 and 1923.

TABLE 2
SURGICAL ADMISSIONS TO THE MANTES HOSPITAL, 1895–1923

	# Surgical Cases	% of All Admissions	# Hernia Repair	# Appendicitis
1895–1898	18	1.3%	7	1
1908–1911	59	3.6%	31	19
1921–1923	228	12.3%	87	121

That almost three-quarters of the surgery at the Mantes hospital was performed after the First World War comes as no surprise. Albert Anne pointed to increased popular willingness to consent to surgery after the war; "it was after the war of 1914 that people began to accept the idea of going to the hospital, because surgery, especially, had improved."[27] Appendicitis had become a fashionable and probably overused diagnosis, particularly since Edward VII's dramatic pre-coronation "appendectomy" in 1902.[28] In the Mantes hospital, women and girls had a disproportionate number of appendectomies, 76, or 56.2 percent of all cases. Since women and girls formed only 40 percent of the entire hospital population, there is reason to suspect that many cases diagnosed as appendicitis may well have been gynecological, or possibly other abdominal complaints.

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[26] Payment information is available for 1834 cases, or 37.5 percent of the total.

[27] Albert Anne, personal communication, January 7, 1979

[28] Walter R. Bett, "Appendicitis," in *The History and Conquest of Common Diseases*, ed. Walter R Bett (Norman. University of Oklahoma Press, 1954), pp. 239-240

Another diagnostic category, "fevers," also presents an interesting pattern of change over time. In the admissions registers of the first half of the nineteenth century, there were two principal diagnoses, fever and injury (*blessé*). By the turn of the twentieth century, the category of fever appeared much more infrequently, only fifty-nine times in the years studied. And fifty-five of these fever diagnoses occurred in the earliest cohort, that of 1895-1898.

The age of bacteriology, ushered in by the work of Pasteur and Koch, emphasized the identification of specific diseases, each with its own causative agent. Fever was often viewed by physicians of the first half of the nineteenth century as the disease itself, not as part of a disease process. By 1900, approaches had changed, and young Dr. Godeau, hired by the hospital to assist Dr. Bonneau, made the more modern diagnoses.[29]

All the patients, regardless of their diagnosis, had stays in the hospital that were surprisingly short. Although there was a rule that all cases were to be reviewed after two months to justify any further hospitalization, there seems to have been little occasion for it to be used. Slightly more than half of all patients stayed less than two weeks; barely one quarter of all the patients stayed longer than one month. Nor was the two-month rule regularly circumvented by discharging patients and immediately readmitting them. Well over 90 percent of the patients treated at the Mantes hospital came only once, and only a handful came more than four times. Back in the 1840s, several patients had made the hospital a virtual second home. Thus, Zoë Lallemand, a seamstress from Mantes, paid twenty-four visits to the hospital between 1840 and 1853; she usually stayed at least three weeks. The Boucher brothers, François the cabinet-maker and Hyacinthe a day laborer, had eleven and seven hospitalizations respectively in the years between 1844 and 1855. They had no counterparts in the 1890s.

People from different occupational groups used the hospital in somewhat different ways. Between 1895 and 1923, about 2 percent of the patient population could be viewed as middle class: that is to say, bureaucrats, professionals, holders of municipal jobs, wealthy or retired people, and highly skilled workers. Although this small cohort's diagnoses occurred in roughly the same proportions as those of the patient population at large, there were several significant differences. The frequency of neurological, psychiatric, and alcohol-related illnesses was almost three times higher among middle-class patients than in the overall patient population. Middle-class families may have protected their members from the indignities of hospital care for many diseases, for childbirth, even for surgery which was often performed at home. But once a middle-class individual exhibited behavior that was considered deviant, or simply unpleasant to look at, as in the case of some neurological disorders, the possibility of hospitalization increased. By contrast, extremely few agricultural workers were hospitalized for alcohol-related, psychiatric, or neurological reasons; unless a farmer were really out of control and a danger to others, rural villagers tended to be extremely tolerant of personality aberrations.

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[29] Dr. Godeau received his degree in 1900.

But it was not only the families of the comparatively wealthy or well-trained that regarded them in a different light; so did the doctors at the hospital. Several of the diagnoses in the hospital registers were fairly sophisticated statements about liver and gall bladder dysfunction, or about metabolic and endocrine problems. These diagnoses almost invariably were those of middle-class patients. Drs. Bonneau and Bihorel, perhaps, when they saw a hobo enter the hospital, took him at his word that he was "under the weather," "all bent over." They saw his poverty first, and did not always look behind it to search for the more precise form of the illness. The diagnosis for 141 people was simply the peasant word for aches and pains, "*courbature,*" and it is striking that two-thirds of the people who received this diagnosis were vagrants. A more highly placed patient, who possibly was paying at a high rate for his care, often received a more detailed assessment.

Indeed, one of the most salient characteristics of the medicine at the Mantes hospital is precisely this wide range of conditions treated and the great variation—from crude to quite sophisticated—in the quality of the diagnosis. If maternity patients are excluded, slightly a quarter of all patients were admitted because of what can really be called the occupational hazards of being a marginal rural worker. Trauma, orthopedics, "aches and pains," problems resulting from neglect and exposure, chemical poisoning—these accounted for half the hospitalizations of all the vagrants studied, but many Mantes residents and rural people came in for these reasons, too. On the other hand, more refined diagnoses were made in the areas of urology, cardiology, oncology, neurology, and psychiatry. The doctor in 1910 who diagnosed osteosarcoma of the right knee, for example, had looked at his patient very closely, and with a trained eye; the doctor who diagnosed conversion hysteria of the leg during the same year surely knew the work of Charcot, not to mention Freud.

Within our time period, 1895-1923, there were several changes in the social composition of the hospital population. The middle-class element remained constant at about 2 percent. Female use of the hospital seems to have been accelerated by the First World War. After the war, women used the hospital in about the same proportion as men; before the war there had been one female admission for every two males. The most dramatic change in the hospital population between 1895 and 1923, however, was the marked decline in the number of vagrants. In the 1890s, 16 percent of all admissions were of homeless people; by the 1920s, only 3 percent fell into that category. It is almost impossible to measure the extent of vagrancy in the Mantes area since vagrants by definition rarely appear on censuses, but there is no anecdotal or other evidence to suggest such a sharp decline in vagrancy in the first two decades of the twentieth century. What seems clear is that the hospital refused to care for these people unless they were truly sick with something more serious than aches and pains. The hospital did not emit any formal statements about a new policy, but with the growth of municipal shelters from the 1890s onward, vagrants had another place to turn for rudimentary care. And so a further step was taken in the gradual clarification of the hospital's role as a medical institution for the sick.

No longer primarily a poorhouse by the 1920s, the Mantes hospital was still not a health care facility of first choice. Many of its clientele were unwed mothers, casual laborers, and people without roots in the area. Employers contracted with the hospital to provide emergency care for injured workers at a cost lower than that charged by private physicians. As the twentieth century opened, there were few advantages that hospitals could offer even to the poor who had other options. Even today, the hospital setting may facilitate the dispensing of medical care for the staff, but very often the psychological aspects of patient care are given short shrift. In the late nineteenth and early twentieth centuries, when the hospitals could make only limited claims to having superior equipment or more complex drugs than private practitioners, popular reluctance to use hospitals is not so difficult to understand.

Nonetheless, in the 1895-1923 period, the Mantes hospital performed a vital service by providing medical and nursing care to several elements in local society. Since the 1860s, the Mantes region, like much of the rich countryside near Paris, had seen the influx of a steady stream of immigrants from less well-developed areas of France.[30] Moreover, since the first third of the nineteenth century, family size in the Mantes region had been declining.[31] As some people from these small families left the Mantes region for Paris in search of better educational and employment opportunities, the family members who remained had fewer kin to turn to when they needed nursing care during an illness. For all these people, products of the declining fertility and the increasing mobility that we associate with modernization, the Mantes hospital provided at least minimally acceptable medical and nursing care.

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[30] On immigration to the Mantes area and the Seine-et-Oise in general, see Evelyn B. Ackerman, "Alternative to rural exodus: the development of the Commune of Bonnières-sur-Seine in the nineteenth century," *French Historical Studies*, 1977, *10:* 126-148, Abel Chatelain, "Complexité des migrations temporaires et définitives à Paris et dans le bassin parisien, XVIII-XX^e^ siècles," *Etudes de la région parisienne*, 1970, *44:* 1-10; and Elie Gautier, *Un Siècle d'indigence Pourquoi les Bretons s'en vont* (Paris Editions Ouvrières, 1950).

[31] On early fertility decline in the countryside of the Ile-de-France, see Jacques Dupâquier and Marcel Lachiver, "Sur les débuts de la contraception en France ou les deux malthusianismes," *Annales. E. S. C.* 1969, *24.* 1391-1406 For a specific example in the Mantes region, see Evelyn B. Ackerman, "The Commune of Bonnières-sur-Seine in the eighteenth and nineteenth centuries," *Annales de démographie historique*, 1977, 85-100.

THE EUGENISTS AND THE RESIDUUM: THE PROBLEM OF THE URBAN POOR*

PAULINE M. H. MAZUMDAR

In the deeply class-divided society of early 20th-century Britain, the problem of the urban poor was one that profoundly interested the many serious and highly educated people who were concerned about social change and who were working for social reforms through legislation. This interest showed itself in the Royal Commission on the Poor Law, which reported in 1909,[1] and in its sequel, the National Conference on the Prevention of Destitution of 1911.[2] The conference had been promoted in the first place by the National Committee for the Prevention of Destitution[3] which was itself a product of the campaign organized by the Fabian Society to "break up the poor law and abolish the workhouse."[4] The conference brought together the representatives of all three political parties, of local government, and of voluntary associations interested not only in medical and sanitary problems but also in education and in social welfare. Also participating were various societies such as the Charity Organization Society, the Eugenics Education Society, the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded, and the National Temperance League, which were directly involved in the problem of destitution.[5]

This paper will attempt to set the eugenics movement in Britain in the context of the endeavors of a number of different but interconnected groups of social activists, all of them concerned with this same problem, the problem of the urban poor. It is this setting and this problem that

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[1] *Great Britain, Royal Commission on the Poor Laws and Relief of Distress Report,* Vol. I, C.d. 4499 of Session 1909 (London H.M.S.O., 1909).

[2] *National Conference on the Prevention of Destitution, Report of the Proceedings.* (London: King, 1911)

[3] See, "National Conference on the Prevention of Destitution to be Held at Caxton Hall, Westminster on May 30th to June 2nd, 1911," *Crusade Against Destitution,* 1911, *2* 63-64

[4] [B. Webb], "Break Up the Poor Law and Abolish the Workhouse" being Part I of *The Minority Report of the Poor Law Commission* (London Fabian Society, 1909)

[5] See list of organizations and individuals involved in *Report of Proceedings* (n. 2 above), pp. iii-iv, vii-xxvi.

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distinguish the British Eugenists from those in other countries, such as the United States and Germany, where eugenics was concerned primarily with the politics of race rather than class.

One of the most powerful and important of these groups in Britain was the Charity Organization Society, founded in 1869.[6] The Society's principle was to give charity only where it would tide an applicant over a temporary difficulty. It was felt that aid was wasted on the *true destitute*. His difficulties were not temporary; they were due to a basic weakness of character, a moral pathology rather than an economic problem.

Six of the eighteen members of the Royal Commission on the Poor Laws of 1909 were members of the Charity Organization Society, and all six of them signed the Commission's Majority Report. The list of causes of destitution of the Majority Commissioners was adopted from the evidence of a Poor Law Relieving Officer from Leeds, who told them:

> The most important causes of pauperism are a) old age b) the early marriage of persons dependent upon casual labour. Large families are the rule . . . c) imprisonment for criminal offences . . . d) venereal disease . . . e) intemperance is another contribution, and in this I find females to be the worst offenders: many men are perforce paupers by the intemperance of their wives. f) indiscriminate relief by private persons and religious bodies also contributes to pauperism and cases have occurred where relief has been in the first instance given in this manner and the recipients eventually become confirmed paupers. g) cases are not wanting to show that pauperism is hereditary—two generations being quite common and third generations occasionally occur.[7]

As Beatrice Webb, who with three other members of the Fabian Society signed the Minority Report of the Commission,[8] noted, the Charity Organization Society felt that a pauper was not a normal person. Normal people did not need help from the Poor Law: they came from healthy stock, they were not promiscuous or intemperate, they committed no crimes, they prudently married late and had small families, and they thriftily saved for their old age.[9]

Of course, this did not mean that the entire working class was lumped together as "lacking in character." The "true industrials"—the respectable, self-supporting wage-earners—were quite different from this pauper class called the "Residuum" by Helen Dendy. She was one of the Charity Organization Society's activists and had sat on the Royal Commission. This Residuum, she said, in an article in the *Economic Journal* in 1893 has

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[6] See C. L. Mowat, *The Charity Organization Society 1869-1913: Its Ideas and Its Work* (London: Methuen, 1961).

[7] *Report* (n. 1 above), Vol. I, being parts I to VI of the Majority Report, p. 286, par. 529.

[8] D. Owen, *English Philanthropy 1660-1960* (Cambridge, Mass.: Harvard University Press, 1964), p 521.

[9] B. Webb, *Our Partnership*, B. Drake and M. I. Cole, eds. (London: Longmans, 1948), p. 403.

> . . . no foresight or self-control, [they] live only in the present and . . . everyday only repeat the mistakes and follies of the day before . . . To fully realize the facts, it is necessary to live among them, watch their extraordinary freaks and feel the burden of their total irresponsibility.[10]

The absence of economic virtues in this group, she noted, was accompanied by a low order of intellect and a degrading of the natural affections to something little better than animal instincts. Miss Dendy's examples of these extraordinary freaks were the coster, the wood-man, the coal man, the girl who goes round cleaning people's steps, the charwoman, the knocker-up, and the old woman who minds babies. These were the people that the Charity Organization Society felt should *not* be helped—they lacked the individual strength of character to help themselves.

In economic terms, this Residuum represented one half of a dual labor market. Economists and labor historians agree that something of this kind can be found in almost all industrial situations. The labor market can be divided into a formal and an informal sector: the formal sector, Miss Dendy's true industrials, earned regular wages in large concerns such as shops and factories. The informal sector, Miss Dendy's Residuum, earned irregularly, from casual labor, or in one-man enterprises, or in the street—outside the industrial-capitalist system. Economists have often called this "surplus labor."[11] They generally feel that these workers have some kind of disability: they may be too young or too old, for example, or have too little education, or be of an unacceptable race or sex, or simply be new entrants on the industrial scene, on their way from a rural to an urban life.[12] Two recent writers, however, have made the new suggestion that the informal sector exists by the small-scale provision of low-cost goods and services to the formal sector workers.[13]

From the point of view of the Charity Organization Society, the informal sector was the Residuum, that is, the paupers without the moral strength to become true industrials. This view was shared by several other reforming groups. Each of the causes of pauperism quoted in the Majority Report had a corresponding society to deal with it: there were societies interested in feeble-mindedness as a cause of pauperism, in intemperance, in the large families of the poor, in venereal disease and in hereditary pauperism. All of them regarded the poor, the Residuum, as somehow pathologically different. These groups shared both interests and members: many people were active in two or more of the societies. Their multi-lateral connections make it difficult to describe them at all clearly. They must be taken as a complex whole, a tissue of the strands of thought and feeling of the highly educated professional middle class as they looked at the lives of the very poor of the industrial towns. This paper will try to sketch some of these societies and their interconnections, and discuss their relationships with the Eugenics Society.

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[10] H. Dendy, "The industrial Residuum," *Econ. J.*, 1863, *3*. 600-616, and reprinted in B. Bosanquet, ed., *Aspects of the Social Problen by Various Writers* (London: Macmillan, 1895), pp 82-102.

[11] See, for example, H. and V. Joshi, *Surplus Labour and the City· A Study of Bombay*, (Delhi: O.U.P., 1976).

[12] See, for example, D. Mazumdar, "The urban informal sector," *World Development*, 1976, *4* 655-680.

[13] R. Sandbrook and J. Arn, *The Labouring Poor and Urban Class Formation*, Monograph Series No. 12, Centre for Developing-Areas Studies. (Montreal: McGill University, 1977).

First, the Moral Education League: it was formed in 1898, to promote moral instruction in schools.[14] According to the League, the purpose of education was the formation of character.[15] Like the Charity Organization Society, the Moral Education League stood for individual responsibility. Many of its members were teachers; their method was to send a member to a school to teach a demonstration lesson on character and ethical choices in everyday life, and then to follow up with books and pamphlets so that the school's ordinary teachers could use the same plan.[16]

The Eugenics Education Society was formed in 1907 as a breakaway group from the Moral Education League. In spite of this, the two societies continued to meet together and had many members and interests in common. The Eugenics Education Society's early lectures were often on moral-education subjects, such as "Mental integrity and how to attain it"[17] or "Moral education"[18] itself. Dr. Ettie Sayer, one of the original breakaways, and a member of both Societies, spoke at the First International Moral Education Congress. Her speech was a nice mixture of social reform, moral education and eugenics. It was reported in the *Daily Mail* under the headline

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[14] G A. S. [G. A. Spiller, secretary of the Moral Education League], "The growth of an idea," *Moral Education League Quarterly*, 1914, *35*. 2-4

[15] "Editorial," *Moral Education League Quarterly*, 1914, *35:* 1

[16] See, for example, F. J. Gould, "Mr. Gould in India· Demonstrator's Report," *Moral Education League Quarterly*, 1913, *32* 1-5

[17] R Jones, "Mental integrity and how to attain it," at Monthly Meeting for June 1908 (title only) *Eugen Ed Soc., First Annual Report* (1907-8), p. 17.

[18] S Coit, "Moral education, a drawing-room lecture, March 1908," (cited by title only) *Eugen Ed. Soc., First Annual Report* (1907-8), p. 17.

> A WOMAN DOCTOR'S REMEDIES
>
> As to real moral degenerates [the Residuum] . . . If diagnosed as so actively antisocial and morally indirigible as to be unfit ever to live among a pure, honest, unselfish and public spirited people, they should be classified and shipped off to various uninhabited isles . . .[19]

The idea of segregating the "real moral degenerates" was the center of the program of another society, the National Association for the Care and Protection of the Feeble-Minded. This was started by Mary Dendy and Mrs. Hume Pinsent in 1896.[20] Mrs. Pinsent was chairman of the Special Schools Subcommittee of the Birmingham Education Committee, and Miss Dendy was Honorary Secretary of the Lancashire and Cheshire Association for the Permanent Care of the Feeble-minded, and founder of the Permanent Care Institution at Sandlebridge near Birmingham. These ladies worked actively to discover children of low intelligence in schools and get them transferred to the Sandlebridge Institution where they would be segregated for life. Both Miss Dendy and Mrs. Pinsent joined the Eugenics Education Society shortly after it was founded. The National Association for the Care and Protection of the Feeble-minded was well represented on the *Royal Commission on the Care and Control of the Feeble-Minded* of 1980; Commissioners included the general secretary of the Society and Mrs. Pinsent, and also the general secretary of the Charity Organization Society, Mr. C. S. Loch.[21]

A popular summary of the findings of the Royal Commission appeared in 1909;[22] it was brought out jointly by the Eugenics Education Society and the National Association for the Care and Protection of the Feeble-Minded. It pointed out that the feeble-minded were excellent objects of charity. Their numbers would not be increased by generosity to them. Instead they would be diminished by taking the feeble-minded into institutions where they would be unable to breed and would "no longer swell the pauper class with their feeble-minded progeny."[23] The two societies joined together to draft a bill for the compulsory segregation of the feeble-minded and they organized a political lobby to press the Government to consider it.[24] The campaign was a success; in 1914 the Mental Deficiency Act came into force, providing for the compulsory segregation of the certifiably feeble-minded.[25]

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[19] E. Sayer, reported in *Daily Mail*, 30 September 1908.

[20] Kathleen Jones, *Mental Health and Social Policy, 1845-1959*, (London. Routledge and Paul, 1960), pp 43-60, 186-187, 196.

[21] *Great Britain, Royal Commission on the Care and Control of the Feeble-minded* (8 vols.), *Report*, Volume VIII, C.d. 4202 (London. H M S O , 1908).

[22] [Mrs. Walter Slater], *The Problem of the Feeble-minded An Abstract of the Report of the Royal Commission on the Care and Control of the Feeble-minded* with an introduction by the Rt. Hon. Sir Edward Fry and contributions by Sir Francis Galton F.R S , the Rev. W. R Inge, D.D., Professor Pigou and Miss Mary Dendy (London: King, 1909).

[23] A. C. Pigou, "The Economic Aspect of the Problem," in [Slater], *Problem of the Feeble-minded*, pp 97-101 esp. p. 99.

The Fabian Society shared in the general concern of the educated upper class with pauperism. Beatrice Webb's leadership of the Minority Commissioners was the first step in that Society's campaign to "break up the Poor Law and abolish the workhouse,"[26] and to establish a "definite Standard Minimum of the conditions of civilized life"[27]—a series of national minimal standards for wages, health, housing, child nurture, and employment. Separate authorities concerned with each of these were to search out cases whose living conditions fell below these minima and support them. Under the Poor Law, a single authority gave relief only to those who were already destitute and only within the workhouse.

The Minority Commissioners developed the National Committee to Promote the Break Up of the Poor Law,[28] which in turn became the National Committee for the Prevention of Destitution.[29] The campaign was managed mainly by Sidney and Beatrice Webb, writing, organizing local propaganda committees and lectures all over the country, and themselves touring and lecturing. They were in Edinburgh in October 1910. Mrs. Webb spoke on "sickness as a cause of destitution" and "unemployment as a disease of society" and Sidney Webb spoke on "child neglect as a cause of destitution" and "the Minority Report proposals for the prevention of destitution."[30]

The Majority Report too, gave rise to an Association to promote its proposals; among its members were many of the active members of the Charity Organization Society, including its secretary, C. S. Loch, Professor Bernard Bosanquet and his wife, Helen Dendy, and Octavia Hill. The president of this new National Poor Law Reform Association was Lord George Hamilton, who had been the chairman of the original Royal Commission.[31]

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[24] *Eugen Ed Soc., Council Minute Book* (Oct. 1909-Dec. 1912), p. 26

[25] See Jones, *Mental Health,* for an account of this campaign.

[26] [B. Webb], "Break up the Poor Law and Abolish the Workhouse."

[27] B Webb, "Preface," in *The Case for the National Minimum* (London: National Committee for the Prevention of Destitution, 1913), p. iii.

[28] "The Crusade," *Crusade Against Desitution,* 1910, *I* 1-2.

[29] The members and program of both National Committees were the same; the change of name took place in June 1910. see inside front covers of *Crusade Against Destitution,* 1910, *I:* 113.

[30] "Mr and Mrs. Sidney Webb's lecture tour in Scotland," *Crusade Against Destitution,* 1910, *I* · 113.

[31] "Our opponents· formation of a National Association," *Crusade Against Destitution,* 1910, *I:* 16.

The Eugenics Education Society's interest in pauperism and destitution was the heart of its program. Very soon after it was founded, the Society arranged lectures for its members on both the Majority and Minority Reports; by C. S. Loch for the Majority[32] and by Sidney Webb for the Minority.[33] The eugenists did not object to the socialist nature of the Webb's welfare proposals but they thought that they did not get at the most basic cause of destitution—the inherited defect, the lesion of the germ-cell that the Zurich geneticist Forel had called *Blastophthoria*. That, they believed, was the true cause of the character weakness that led to drunkenness, venereal disease, large families, criminality—to pauperism.[34] The Majority Report claimed that pauperism was caused by lack of character and the Minority Report that it was a social disease. The Eugenics Society thought that lack of character *and* the economic problem were biological: pauperism was an inherited defect. In 1909 the Society set up a committee to "consider the eugenic aspects of Poor Law reform." The *Eugenics Review* devoted a whole issue to the theme and the committee's report appeared in it:

> That element in pauperism which represents and transmits original defect, . . . almost wholly neglected in the recommendations of the Commission, is the one we wish to be taken into consideration . . . [the defective] affords the chief burden on the public purse. He is not the man that responds to a call upon manly independence or stands ready to take a place made available through the labour exchange. He was born without manly independence . . . he does not respond because there is nothing in him to respond. His mainspring came into the world broken. His reproductive instinct however remains intact.[35]

The status of industrial employment was too high for him to aspire to. His degenerate tendencies

> . . . do not manifest in transmission a single set of characteristics but a great multiplicity of forms. A single family stock produces paupers, feeble-minded, alcoholics and certain types of criminals. If an investigation could be carried out on a sufficiently large scale we believe that the greater proportion of undesirables

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[32] C. S. Loch, "Eugenics and the Poor Law: the Majority Report," *Eugen. Rev*, 1910-11, *2*: 229-232.

[33] S. Webb, "Eugenics and the Poor Law: the Minority Report," *Eugen. Rev.*, 1910-11, *2*. 233-237 and reprinted in *Eugen Rev.*, 1968, *60*: 71-75, (References are to this reprint) and in approximately the same form in S. and B. Webb, *The Prevention of Destitution* (London: National Committee for the Prevention of Destitution, 1911).

[34] [M. Crackanthorpe], "Presidential Address, 1910," in *Eugen. Ed Soc.*, *Second Annual Report* (1909-1910) pp. 1-16, esp. pp. 10-16.

[35] [J W Slaughter], "Report of the Committee Appointed to Consider the Eugenic Aspect of Poor Law Reform, Section I, 'The Eugenic Principle in Poor Law Administration,'" *Eugen. Rev.*, 1910, *2*. 167-177, esp. p. 173.

> would be found connected by a network of relationships. A few thousand family stocks probably provide this burden . . .[36]

The eugenic solution for pauperism was the same as that for feeble-mindedness; in fact, the Committee tended not to differentiate them. The solution was that the Poor Law Guardians must have legal powers of detention. The old Poor Law principle of "less eligibility" had to be reversed: the paupers should *not* be made to elect to get out of the workhouse if they could. They should be kept there in detention like the feeble-minded and their prolific breeding brought to an end.

The *Crusade Against Destitution,* the organ of the Fabian Society's campaign to "break up the Poor Law," had carried an advertisement for this special number of the *Eugenics Review,*[37] but it was treated rather critically in the following issue of the *Crusade.* The reviewer wrote:

> We are very fully conscious of the great importance of the eugenic standpoint in connection with the problems of destitution, especially as regards the feeble-minded. Moreover, there can be no question that the present Poor Law, like many forms of charity, has a definitely anti-eugenic influence, because on the whole it tends to subsidize the reproduction only of the lowest social types, i.e., those who cannot be deterred by the "taint" attaching to Poor Law relief and who regard the Workhouse as a free maternity hospital where their infants can be born and if necessary brought up.[38]

The reviewer approved of the eugenist argument, including, as this quotation shows, its class-centered position on the "lowest social types" whose reproduction was undeservedly being subsidized. We are reminded of the labor historian Hobsbawm's presentation of the Fabians as a group drawn from a new salaried managerial middle class, including a large proportion of educated women. By 1906, only 34 out of 1060 members were workers, a composition reflected in the writing in the *Crusade.*[39] The *Crusade*'s articles were written by middle-class writers, for a middle-class readership. This is particularly clear in the stories dramatizing the struggle of the lower class with destitution and disease for the sympathetic middle-class reader. He or she was a reader who was assumed to experience these things only vicariously.[40]

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[36] *Ibid.*, p. 177

[37] Advertisement for *Eugen. Rev.*, Oct. 1910, *2;* no 3 inside back cover of *Crusade Against Destitution*, Nov. 1910, *1*, no. 10.

[38] "F. S. S.," "Eugenics and pauperism," *Crusade Against Destitution*, 1910, *1* 131-132.

[39] "The Fabians reconsidered" in E. J. Hobsbawm, *Labouring Men Studies in the History of Labour* (London. Weidenfeld, 1964), pp. 250-271.

[40] See, for example, "In a Spike (by a Poor Law Medical Officer)," *Crusade Against Destitution*, 1910, *1:* 121-122, or "The margin of existence," *Ibid* , *1* 132-136.

But the *Crusade*'s reviewer did not approve of the Eugenics Society's reduction of all the diverse causes of destitution to the single underlying cause of an inherited defect; neither did he approve of the Society's research methods. The pauper pedigrees collected to demonstrate the inheritance of pauperism all came from workhouse records; there was no comparative material from any other source. The reviewer angrily quoted the phrases about the "typical dependent" whose "mainspring came into the world broken"; these words demonstrate, he said, that the whole question was simply begged at the outset.

The Eugenics Society's pauper pedigrees might be criticized, but the *Crusade* itself published editorially material of a very similar kind on the problem of the feeble-minded, including a "typical pedigree." As the editorial writer said, the recommendations of the Royal Commission on the Care and Control of the Feeble-minded had been "adopted in their entirety by both the Majority and the Minority Commissioners, and the subject thus passed practically out of the range of controversy."[41] The *Crusade* reflected this consensus on the feeble-minded by publishing two articles, "The feebleminded: a problem in eugenics" by Dr. C. W. Saleeby,[42] and "What has been and is being done for the feebleminded" by Miss A. H. P. Kirby, Secretary of the National Association for the Feeble-minded.[43] Both of the authors had been members of the Eugenics Education Society from the beginning, and both served on its Council. The eugenic consensus on the feeble-minded was also reflected in the papers on feeble-mindedness given at the National Conference on the Prevention of Destitution of 1911 where E. J. Lidbetter, General Relieving Officer of the Bethnal Green Workhouse, put the eugenist point of view in a nutshell:

> . . . it is the view of the [Eugenics] Society that destitution, so far as it is represented by pauperism (and there is no other standard) is to a large extent confined to a special and degenerate class.[44]

and after quoting again that the pauper "was born without manly independence . . . he came into the world with his mainspring broken," Lidbetter makes his point:

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[41] Editorial "The problem of the feebleminded," *Crusade Against Destitution*, 1911, 2· 25-27.

[42] C. W. Saleeby, "The feebleminded: a problem in eugenics," *Crusade Against Destitution*, 1911, 2 27-29.

[43] A. H. P. Kirby, "What has been and is being done for the feebleminded," *Crusade Against Destitution*, 1911, 2 30-32.

[44] E J Lidbetter, "Eugenics and the Prevention of Destitution" in *Report of the Proceedings*, p. 623

[45] *Ibid.*, p 626.

> To what length is the community prepared to go in its defence against these classes? It is clear that for some of them the only measure is that suggested by the Eugenics Society—namely, detention and segregation.[45]

To prove the point that the pauper class was just a few thousand interrelated families which passed on pauperism as a heritable defect, the Eugenics Society set up a Research Committee, with Lidbetter as a member, to collect and correlate pauper family histories and to display them in the form of large interconnected pedigrees.[46] These eugenist pedigrees (Figs. 1, 2) are peculiar to the Eugenics Education Society and its Research Committee. They are not meant to show any particular pattern of inheritance. There is no insistence on mendelism, that is, no attempt to trace a whole pauper kindred back to a single defective individual—the "vulgar mendelism" of the American eugenists—and there is no question of race. The pedigrees show a network of relationships, the biological connections within a social class, the Residuum of the Charity Organization Society's economists. They are a kind of qualitative population genetics. One complex pedigree can stand for a whole inbreeding caste. As Leonard Darwin wrote, they were "like rivers flowing steadily on wide fronts, carrying on their surfaces patches of refuse."[47] (Fig. 3)

Feeble-mindedness was only one of the forms of the basic defect that produced this hereditary pauper class; the others included those causes of pauperism cited by the Leeds Relieving Officer to the Royal Commission. But the hereditary disease of pauperism was not a disease of society, as the Webbs had called it; it was a disease of the individual. Although it was inherited, the Society's writing showed that the victim was felt to be personally responsible for it. Dr. Slaughter, commenting on the pedigrees for the Society's Poor Law Committee, wrote

> Several broad features are at once discernible. First among these is the fact that one pauper family has a tendency to marry into other pauper families. In this way half a dozen or more pauper families may be related to each other. Secondly, the evidence is clear that successive generations of the same family contain a due proportion of paupers. This points to the conclusion that pauperism is due to inherent defects which are hereditarily transmitted. Thirdly, the experience of the Committee is quite clear that the paupers whom they have seen and examined

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[46] For a discussion of E. J. Lidbetter and the Research Committee of the Eugenics Education Society, see P. M. H. Mazumdar, *Eugenists, Marxists and the Science of Human Genetics: A History of Human Genetics in Britain, 1900-1950* (in press 1979)

[47] L. Darwin, Introduction to E. J. Lidbetter, *Heredity and the Social Problem Group* (London: Arnold, 1933), Vol. I, (no more appeared).

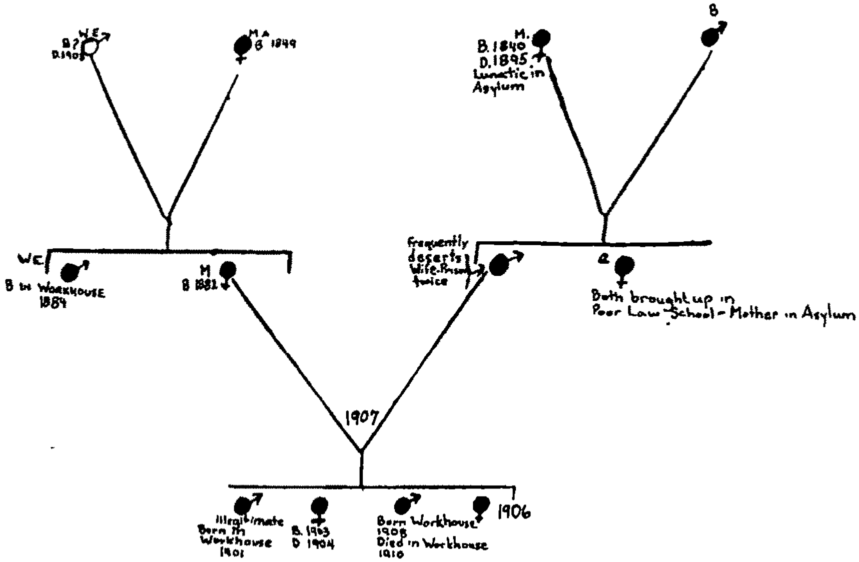

Figure 1. Pauper pedigree showing a three-generation family with paupers on both sides and in all three generations. From E. J. Lidbetter, "Some examples of Poor Law eugenics," *Eugen. Rev.*, 1910-11, *2:* 218, Chart 8. (As published except for lettering: symbols as for Fig. 2).

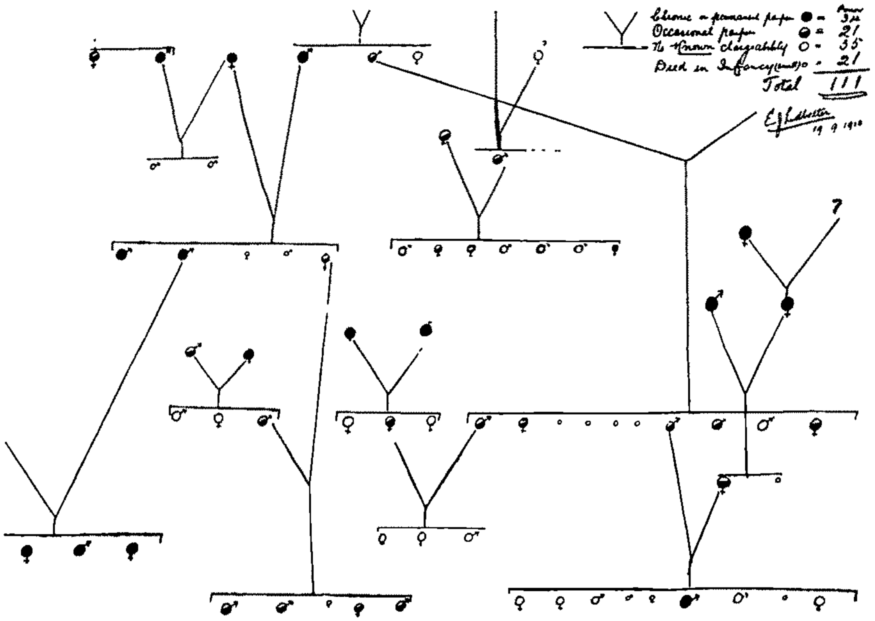
Chronic or permanent pauper ● = 34
Occasional pauper = 21
Not known chargeable ○ = 35
Died in Infancy (unmarked) = 21
Total 111
E J Lidbetter
19 9 1910
?

Figure 2. Pauper pedigree showing complicated interrelationships between pauper families over many generations. Detail from E. J. Lidbetter, "Some examples of Poor Law Eugenics," *Eugen. Rev.*, 1910-11, *2:* opposite p. 228.

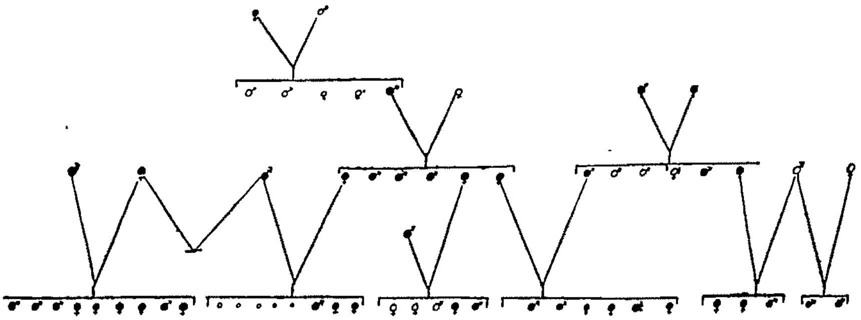

Figure 3. Pauper pedigree showing what Leonard Darwin called "rivers flowing on broad fronts, carrying patches of refuse on their surface." From E. J. Lidbetter, "Some examples of Poor Law eugenics," *Eugen. Rev.*, 1910-11, *2*· 225, Chart 2. (As published except that Lidbetter's lettering has been omitted. Symbols as for Fig. 2).

> individually are characterized by some obvious vice or defect such as drunkenness, theft, persistent laziness or tubercular diathesis, mental deficiency, deliberate moral obliquity or general weakness of character, manifested by want of initiative or energy or stamina and an inclination to attribute their misfortune to their own too great goodness and generally bad luck.
>
> . . . There is no doubt that there exists a hereditary class of persons who will not make any attempt to work or to continue in work so long as charitable funds even of small amounts are forthcoming . . .
>
> When we find it possible to trace four generations of paupers there can be little doubt as to the hereditary transmission of these defects. More perhaps than anything else such a fact speaks forcibly as to the real nature of pauperism.[48]

This paper suggests that the eugenics movement in Britain was part of a larger movement: the attempt by the upper middle class to understand the urban poor, and to try to control them. Each of the societies had its own solution—the Charity Organization Society, the Moral Education League, the Society for the Care and Control of the Feeble-minded and the Fabian Society. The Eugenics Education Society felt that its explanation undercut all of them; at bottom, the problem lay in the germ plasm shared by these few thousand families of the Residuum. It could be solved through the Poor Law and compulsory segregation in the workhouse. This paper points out that all these societies together, sharing their problem, were interrelated as were the pauper families. The social activists of the educated upper middle class formed a group broadly dedicated to the problem of getting rid of another entire class, the class they called the Residuum.

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[48] "Report of the Committee . . . of Poor Law Reform," p. 187

THE CONVERSION OF ANGUS SMITH: THE CHANGING ROLE OF CHEMISTRY AND BIOLOGY IN SANITARY SCIENCE, 1850-1880

JOHN M. EYLER

In discussing innovation in the sciences or medicine it is sometimes useful to turn from the most brilliant investigators to their less gifted or less fortunate comrades. If these minor figures were well-informed and active they sometimes serve as more representative members of a discipline or profession than their peers who are better known to posterity. One such illuminating lesser light was the Manchester chemist, Robert Angus Smith. Smith occupies no major place in the history of science. Much of his energy went to making laborious, repetitive measurements. Even he occasionally sensed that he taxed his readers' patience. "I feel almost ashamed to bring so many figures to prove so little, but we know that wisdom grows slowly. . . ."[1] The most extensive historical assessment of his career concludes that his science was pedestrian.

> Robert Angus Smith was not a great scientist. Even by the standards of the times, he was a half-trained amateur; the growing professionalism of the later 19th century left him far behind. He started many hares and caught none; one cannot point to him as the author of any major discovery or innovation. His theories were often wrong and his quantitative results unreliable.[2]

Why then should historians bother with Smith? The authors of the criticism just cited have no doubt of Smith's historical significance. They find that significance primarily in Smith's efforts to apply scientific methods to problems of public concern. Smith was among the first to recognize the relevance of scientific analysis for the study and control of environmental problems associated with industrialization and urban growth. His posts as inspector under the Alkali Acts Administration (1863) and the Rivers Pollution Prevention Act (1874), public agencies concerned with air and water pollution respectively, as well as his role in the investigations of several parliamentary commissions, gave him ample opportunity

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[1] *[First] Report to the Local Government Board* [Rivers Pollution Prevention Act, 1876], P P., 1881, XXIII, p 29.

[2] A. Gibson and W. V. Farrar, "Robert Angus Smith, F. R. S., and 'Sanitary Science,'" *Notes Rec. Roy Soc Lond*, 1974, *28*. 256-257

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to pursue this inspiration. His efforts in those civil service positions have also brought him historical notice among those interested in the emergence of the scientific expert within British administration.[3]

While freely admitting Smith's creative limitations and granting the importance of discussing him in the context of applied chemistry or of the civil service scientific inspectorate, I believe we err to limit our analysis of work like his to these perspectives. In his cumbersome methods and often strange statements of principle, we find revealed aspects of that important transformation in disease theory that occurred during the third quarter of the nineteenth century. Smith was aware that he was playing a minor role in a major change. His efforts to come to terms with new evidence and theory are illustrative of the common assumptions of his age.

Smith established a successful scientific career in spite of early disadvantages.[4] His family was poor, and his education, although specialized, was obtained piecemeal. He attended Glasgow High School and spent one year at Glasgow University. Following a period in which he supported himself by tutoring, he studied chemistry with Justus Liebig at Giessen and obtained his Ph.D. in 1841. Within several years Smith had settled in Manchester and eventually established himself as a consulting chemist. Financial security came only later with his appointment as inspector to the Alkali Acts Administration.

Smith began his scientific career as assistant to Lyon Playfair, fellow British student of Liebig and commissioner to the Metropolitan Sanitary Commission.[5] The experience introduced Smith to the problems of air and water pollution and to the reform demands of the sanitarians. For the next two decades his publications expound the sanitary creed. He mentioned with approval the ideas of Thomas Southwood Smith and the activities of the General Board of Health, and he explained the miasmatic theories of disease that underlay the strategy of sanitary reform.[6] Suspended organic matter, miasma, Smith believed was either given off by living bodies or was locally produced from decomposing filth and other organic material. The production and effect could best be understood by an analogy to the process of fermentation. It followed that the policies of preventing disease must emphasize sanitation and drainage, improved ventilation, and reduced crowding.

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[3] Roy M. MacLeod, "The Alkali Acts Administration, 1863-84: the emergence of the civil scientist," *Vict. Stud.*, 1965, *9.* 90-112; and Robert H. Kargon, *Science in Victorian Manchester: Enterprise and Expertise* (Baltimore: Johns Hopkins University Press, 1977), pp. 125-130 and 132-134.

[4] The best account of Smith's life and scientific career is Gibson and Farrar, "Robert Angus Smith," pp. 241-262.

[5] Smith gave evidence to the commission *Second Report of the Commissioners Appointed to Inquire whether any and what Special Means may be Requisite for the Improvement of the Health of the Metropolis*, Minutes of Evidence, P.P , 1847-48, XXXII, pp. 34-36. For Playfair's relationship to Liebig see Kargon, *Science*, pp. 86-93.

[6] His most extensive discussion of disease theory in these decades is his "Some ancient and modern ideas of sanitary economy," *Mem. Lit. & Phil Soc. Manchr.*, 2nd ser., 1854, *11:* 39-89. For his practical suggestions see particularly his "On sewage and sewage rivers," *Ibid* , 1855, *12.* 155-175. For a popular

All this was standard fare in sanitary tracts. What distinguishes Smith's utterances from many others during the early phases of the public health campaign was a more explicit development of the chemical implications of these popular notions. Citing Liebig, his mentor, Smith explained that fermentation was a purely chemical change, a form of decomposition.[7] It was a process in which a body was split up into parts by an internal power communicated to it by contact with another body. That power did not seem to depend on either the physical force or atomic equivalent to the communicating body. It was, in other words, proportional to the quality not to the quantity of the body.[8] Disease seemed to involve similar processes. The pathological changes in a sick person, a cholera patient for instance, might be understoood as a diverted or reversed fermentation.[9] Deliberately playing with the ambiguity of a term having both environmental and pathological meaning, Smith even claimed to have chemically produced "artificial malaria," by passing ammonia gas through a soil sample rich in organic material which then underwent a rapid putrefaction.[10]

Chemical analogies not only helped explain the appearance and nature of individual cases, but they also suggested how cases appeared in the aggregate.

> The similarity of decomposition produced in one person by contact with another, is so analogous to fermentation or putrefactive decomposition, that we have no stronger mode of producing identity of action. . . . But a ferment acts by self-

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but somewhat later statement of his hygienic ideas see R[obert] A[ngus] S[mith], "Sanitary Economy," *Ure's Dictionary of Arts, Manufactures, and Mines*, suppl., ed. Robert Hunt (New York, 1866), pp. 967-975.

[7] For a discussion of Liebig's ideas of fermentation and disease see Margaret Pelling, *Cholera, Fever and English Medicine, 1825-1865* (Oxford: Oxford University Press, 1978), pp. 120-125

[8] Smith, "Some ancient and modern ideas," p. 62 For an example of the regard in which he held Liebig long after leaving Giessen, see the dedication in Robert Angus Smith, *Air and Rain. The Beginnings of a Chemical Climatology* (London, 1872).

[9] Smith, "Some ancient and modern ideas," p 63.

[10] R Angus Smith, "On the production and prevention of malaria," *Mem. Lit. & Phil. Soc Manchr.*, 3rd ser., 1862, *1*. 222, 225, and 233.

> destruction. When it is done, what becomes of it? It converts the material next it, if capable, into a ferment also. We therefore conclude that infections increase according as the material to feed them increases; in other words, they convert all impure matter into infection, because it is fermentable in a particular way. . . . Filth, therefore, is a conveyancer of disease, taking the lead of any infection which happens to have the reins in its hand at the time. No wonder, then, if all diseases disappear before a great disease,—one great ferment banishing the others.[11]

Thus in a statement of common notions the ideas of Liebig on fermentation and the hygienic notions of the sanitarians could be conjoined.[12] What is particularly interesting here is how little relevance the question of contagion had. Smith saw no problem in postulating both transmission of disease by contact and the local conversion of filth into infectious matter. It is the scientific model that is of greatest significance in Angus Smith's publications on disease. That model was thoroughly chemical. Sanitary law, he explained, was as much a branch of chemistry as of medicine.[13] He devoted a significant part of his career to the task of using the tools of chemistry to hunt for the agents of disease. Granted the dominant assumptions among his peers and teachers, his strategy was reasonable and timely.

Smith shared with the sanitarians a firm belief, based ultimately on aesthetic judgments, that the air of towns was different from and markedly less salubrious than the air of the countryside. That difference, he was initially convinced, depended on the quantity of organic material in suspension. In his first set of papers (1848-1852), he defended the soundness of common opinions about town air despite the fact that chemistry had thus far been unable to demonstrate any significant difference between the air of towns and that of the countryside, and he sought afresh to gather such evidence.[14] He collected condensation indoors and fresh rain water outdoors and studied these liquids. He showed that liquid which condensed on the windows of crowded rooms had the distinct odor of perspiration, and on standing it formed a glutinous mass in which the microscope revealed "Confervae," "greenish globules," "various species of Volvox," and "monades many times smaller."[15] Such microscopic forms were also to be found in town drinking water and in moisture which had been collected by condensation from human breath. Their presence proved that the liquid contained organic material on which these tiny forms fed. He also showed that when he burned the residue of liquids collected by these methods the smell of ammonia and feathers was produced. Smith explained this was "characteristic of albuminous compounds."[16] The approach was qualitative, but it seemed to demonstrate that town air and water did contain abundant organic material, material implicated in the causation and spread of disease.

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[11] Smith, "Some ancient and modern ideas," pp 62-63.

[12] Several historians have insisted that chemical theories of disease added scientific credibility to the sanitarian's notions See for example Pelling, *Cholera, Fever,* pp. 137-138 and 145.

[13] Smith, "Some ancient and modern ideas," p 64.

[14] The relevant papers in this series are: "On the air and water of towns," *Report B.A.A.S.*, 1848, *18:* 16-31; "On the air and water of towns. Action of porous strata, water and organic matter," *Ibid.*, 1851, *21:* 66-77, & "On the air and rain of Manchester," *Mem Lit. & Phil. Soc Manchr.*, 2nd ser., 1852, *10:* 207-217.

In the later fifties Smith returned several times to this problem, but now he attempted to measure the quantity of organic material in the air. He began washing air samples by repeatedly changing the air in a bottle of known volume containing a measured amount of distilled water.[17] After each change the bottle was shaken. The process was extremely laborious, involving in some cases as many as 200 changes and shakings. The water sample was then subjected to chemical analysis. He determined the amount of organic material in the water by finding the chemical oxygen demand using a standard permanganate solution.[18] He did not invent this technique but helped to popularize it.[19] He also used known chemical tests for dissolved gases. Also revealing of his perspective and purposes are his attempts to demonstrate the existence of organic material in the vapor over putrefying meat and blood and to suggest that the reaction of blood with "pure" air was different from that with "impure" air.[20] The tests with putrefying animal matter were so obnoxious that Smith soon gave them up.[21]

His results seemed to confirm his suspicions. The air of crowded rooms, or industrial cities, or near middens or sewers contained less oxygen and more carbonic acid (carbon dioxide) and organic material than the air of less congested suburban districts, over the Atlantic Ocean, or in such beloved places as the Highlands of Scotland. It was true that the mass of organic material in the air was exceedingly small, but it was also true that there were large differences in the relative quantities of this material in the air collected at various places.[22] His range of measured values was 1 to 22. Judging from his experiments with putrefying animal material he thought a range of 1 to 9000 possible under extraordinary circumstances. Within districts of the same industrial city the range of values often ran from 9 to 22. Very significantly this range was in rough proportion to the range of the crude death rates for the districts of Manchester. In 1859 Angus Smith had high hopes for his approach.

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[15] Smith, "On the air and water" [1848], p 18.

[16] Smith, "On the air and rain of Manchester," p. 214.

[17] Robert Angus Smith, "On the estimation of the organic matter of the air," *Proc Roy Inst.*, 1859, *3:* 89-94; and R. Angus Smith, "On the air of towns," *Q. J. Chem Soc. Lond.*, 1859, *11* 196-235, esp. pp. 217-224

[18] For a discussion of his improved procedure see Smith, "On the air of towns," pp 218-224

[19] Gibson and Farrar, "Robert Angus Smith," p. 253.

[20] Smith, "On the air of towns," pp. 223 and 224-227.

[21] Gibson and Farrar, "Robert Angus Smith," p 253.

> Dr. Southwood Smith has observed that the facts on which sanitary economy are built are exceedingly difficult of comprehension by a large number of people, because the cause of the evil cannot be brought directly under the observation; if however any plan were invented of showing that these dreaded emanations existed even when the senses could not perceive them, belief would be easily gained, and the requisite carefulness would then take place. If the method explained be found to be no more valuable than this, it will at least not be reckoned among useless discoveries.
>
> We may hope, however, that it will be found to prove not only that much of that which we have already known is true, but that many other now hidden things are true also; we may find that every wind will have attached to it its mark of unwholesomeness with respect to this test, and that every season also will have its co-efficient. . . . We may even hope to find some premonitory symptoms of disease in the atmosphere before it affects the human body; the exciting cause itself existing long before it has been able to take effect, so that useful precautions may be made in time, and an efficient defense prepared. At the same time no proof whatever has yet been given that a plague or any infectious disease can be estimated by it, although reason has been given for such an expectation, whilst the air over different fields differs enough to promise some knowledge of miasm.
>
> But what is abundantly established and made clear to the eye is that the air of our large cities is sufficiently impure to account for much of their unhealthiness, and the air of our hills and seas and lakes sufficiently pure to account for its salubrity.[23]

With his investigation for the Mines Commission of 1864, the thread of Smith's work that we are considering took another turn. Smith attempted to determine the quantity of organic and inorganic particles in suspension as well as the concentration of various gases in the air of mines.[24] He was concerned, too, with the physiological effects of such artificial environments. He presented to the Commission results of experiments carried out in an air-tight lead chamber, the ultimate in a poorly ventilated place. Subjects remained in the chamber for hours, recording their pulse and respiration and noting the rate at which candles burned and their light diminished. Meanwhile Smith monitored the carbonic acid concentration from outside the chamber.[25] These experiments convinced him that carbonic acid was physiologically more harmful than he had originally thought. More important, however, was the fact that this gas, as he observed, "almost always comes in bad company."[26] The concentration of carbonic acid appeared thus to be "the best chemical test for ventilation of rooms rendered impure by exhalations" of humans.[27] For this reason, and because carbonic acid was easier to detect than the airborne organic materials, Smith's attention shifted briefly to the measurements of CO_2 levels. He tried several techniques. Most important were the use of manganate of potash, and Pettenkofer's tests using lime water or baryta water (barium hydrate).[28] Both were fairly difficult. However, he soon devised a simpler technique. In his minimetric analysis, as he chose to call this modification of Pettenkofer's method, air was changed in a bottle containing dilute baryta water by squeezing a rubber bulb and after each squeeze the bottle was shaken. The investigator had only to count the number of changes of air required to produce a perceptible turbidity in a known quantity of a standard solution. This number could be converted into a figure for the carbonic acid concentration using a table. The method was quite simple and reasonably accurate. Smith apparently hoped to see it used routinely to monitor ventilation because he provided numerous accounts of it, accounts intended both for scientific or official audiences and for more popular audiences as well.[29]

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[22] Smith, "On the air of towns," pp. 222-223.

[23] Smith, "On the estimation of the organic matter of the air," p. 94.

[24] Smith's evidence for the Commission is found in *Report of the Commissioners appointed to Inquire into the Condition of All Mines in Great Britain to which the Provisions of the Act 23 & 24 Vict. Cap 151 do not Apply, with Reference to the Health and Safety of Persons Employed in such Mines*, appdx. B, P.P., 1864, XXIV, Pt. 2, pp. 183-285. Portions of this report were reprinted in Smith, *Air and Rain*, pp. 42-68, 73-89, 130-142, 158-216, 399-416, and 521-522.

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[25] Smith in *Mines Commission report*, pp. 241-259; Smith, *Air and Rain*, pp. 130-142, 158-192, and 209-224. Some of these results were also presented in "On some physiological effects of carbonic acid and ventilation," *Mem. Lit & Phil. Soc. Manchr.*, 3rd. ser , 1868, *3* 91-108

[26] R Angus Smith, "On the composition of the atmosphere," *Mem. Lit. & Phil. Soc Manchr.*, 3rd ser., 1868, *3:* 49; or Smith, *Air and Rain*, p. 55.

[27] Smith in *Mines Commission report*, p. 236.

[28] Smith, "On the air of towns," pp. 213-217, Smith, "On the composition of the atmosphere," p. 40; and Smith in *Mines Commission report*, pp. 199-200 and 236; or Smith, *Air and Rain*, pp. 82-89 Pettenkofer had published an English account of his method only a few years earlier, M. Pettenkofer, "Volumetric estimation of atmospheric carbonic acid," *Q. J. Chem. Soc Lond.*, 1858, *10:* 292-297

[29] Essentially the same version appeared in three places: Smith in *Mines Commission report*, pp. 236-241, Smith, *Air and Rain*, pp. 192-209; and R. Angus Smith, "On minimetric analysis," *Mem. Lit. & Phil. Soc. Manchr.*, 3rd ser., 1868, *3:* 187-203. See also Angus Smith, "On a method of estimating

By the middle 1860s Angus Smith could take a certain satisfaction in the success of his research. Although he had not identified the airborne chemical agents of disease, he had, he believed, illustrated their existence and demonstrated how their prevalence varied with sanitary condition. Moreover, his work had practical implications. Several tests for air quality and for the effectiveness of ventilation were developed. He also had cooperated with Alexander McDougall, the Manchester chemical manufacturer, in the development of McDougall's Powder, the patented carbolic acid disinfectant which Joseph Lister observed in use to treat Carlisle's sewage.[30] Smith's understanding of the action of this powder was, not surprisingly, a chemical not a biological one. He believed that by raising the acidity of sewage or marshy soil, putrid decomposition of organic material was retarded and the production of miasmata reduced.[31]

But by the end of that decade, that is, after twenty years of investigation, Smith's ideas on the nature of disease began to change. The turning point seems to have been his work for the Cattle Plague Commission, where he learned of Pasteur's work on fermentation and spontaneous generation.[32]

> I certainly fancied that I was giving good service by proving the presence of organic or oxidizable matter in the air by the use of permanganate of potash, but the results obtained by M. Pasteur regarding the existence of organized substances, as we may call them, or germs, is a step so definite, clear, and important, that we must at once begin as on a new foundation, and date theories of many diseases and also of disinfection and cure from this era.[33]

Smith's approach showed the effect of reading some of Pasteur's studies. In addition to experiments conceived in his past conceptual framework, such as experiments on the ability of various chemical disinfectants to arrest the putrefaction of meat, blood, and excrement,[34] Smith began to

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carbonic acid in the air," *Report B A.A S* , trans. sects., 1865, *35*. 35-37, R. Angus Smith, "The air of houses and workshops," *Trans. N.A P.S S* (Sheffield, 1865), pp 419-427; and R. Angus Smith, *First Report by the* [Alkali Act] *Inspector of his Proceedings during the Year 1864*, P.P., 1865, XX, pp. 48-51.

[30] Gibson and Farrar, "Robert Angus Smith," pp. 250-252 and 257-258.

[31] Smith, "On the production and prevention of malaria," pp. 224-225 and 230-233; and R. Angus Smith, "On disinfection and ventilation," *Third Report of the Commissioners Appointed to Inquire into the Origin and Nature, &c of the Cattle Plague*, P.P , 1866, XXII, pp. 159-160, reprinted in part in Robert Angus Smith, *Disinfectants and Disinfection* (Edinburgh, 1869), pp. 29-31.

[32] It has been suggested that William Crookes, Smith's collaborator in the Cattle Plague research, brought Pasteur's work to Smith's attention, Gibson and Farrar, "Robert Angus Smith," pp. 244-245.

[33] Smith in *Cattle Plague Commission report*, p. 155 reprinted in Smith, *Disinfectants and Disinfection*, p. 18

[34] Smith in *Cattle Plague Commission report*, pp. 161-182.

take renewed interest in the microscopic examination of the air. During the Cattle Plague investigation, William Crookes collected for him samples of airborne materials from infected cow sheds by washing air samples with water and by filtering air through cotton.[35] Although he was no microscopist, and freely admitted his inexperience in this field, Smith studied these samples microscopically as best he could. Soon thereafter he collected suspended material by washing 500 changes of Manchester air in a small amount of distilled water. The clouded fluid was turned over to the local instrument maker and microscopist, J. B. Dancer, for examination.[36] Both microscopic examinations showed organic debris and microbes.

The experience caused Angus Smith to reinterpret some of his past observations. He pointed out during and after the Cattle Plague Commission that earlier in his career he had found microbes in the air.[37] Now however he expressed interest in these particles themselves instead of merely taking their presence as proof that the air in which they were found contained dead organic matter on which he believed they fed. When John Tyndall published his optical demonstration of airborne microorganisms, Smith believed his previous work had been overlooked, and he read a paper before the Literary and Philosophical Society of Manchester setting forth his claims.[38]

Pasteur's results amazed and stimulated Smith. He understood Pasteur's work, not all of which he had read, to have demonstrated that organized substances exist in the air in large numbers and are capable of producing "hitherto entirely mysterious phenomena, putrefaction included."[39] Smith boldly reasoned by analogy to human diseases. Of all previous investigations of compounds resulting from organic decomposition only Pasteur's, he insisted, was "at all calculated to bring out such an intelligible rational view of the origin of many diseases, and also of some phases of putrefaction."[40]

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[35] *Ibid.*, pp. 185-186 This section was reprinted in Smith, *Air and Rain*, pp 484-487; and in part in R Angus Smith, "A search for solid bodies in the atmosphere," *Mem. Lit & Phil. Soc. Manchr* , 3rd. ser., 1871, *4*. 266-268.

[36] Smith, "A search for solid bodies," pp. 269-270; and J. B. Dancer, "Microscopical examination of the solid particles collected by Dr Angus Smith from the air of Manchester," *Mem. Lit & Phil. Soc. Manchr.*, 3rd ser , 1871, *4* 270-274. The latter was reprinted in Smith, *Air and Rain*, pp. 487-491.

[37] Smith, "A search for solid bodies," p 270, and R. Angus Smith, "On organic matter in the air," *Proc. Lit. & Phil Soc. Manchr.*, 1869-70, *9*· 67-69.

[38] Smith, "On organic matter in the air," pp 65-76.

[39] Smith in *Cattle Plague Commission report*, p. 156, also slightly altered in Smith, *Disinfectants and Disinfection*, p. 21.

[40] *Ibid.*

Smith's work began to show Pasteur's influence. He showed, for example, a greater willingness to adopt a biological perspective. In a paper on water analysis he read in December of 1867, Smith tried to allay fears about the discovery of organic material in town drinking water by insisting that all organic material was not equivalent.[41] There were, in fact, seven classes of such organic matter of which the most significant, from the standpoint of the surveillance of water quality, were the last two, "vegetable organic matter" and "animal organic matter." A chemical test for the total amount of organic matter or nitrogen in water was therefore insufficient. He proposed that any good analysis of water should include a microscopic examination. He had in mind a rather cursory test which involved allowing the sample to sit several days before examining it for organized bodies. Any sample showing evidence of forms with "distinct locomotion" was "more than suspicious" and ought to be rejected for human consumption.[42] Smith's renewed interest in microbes went even further. He accepted, he said in the Cattle Plague Commission report, that the cause of this dread epizootic was an infectious matter consisting of minute "organic and active" particles.[43]

By reading selectively we might therefore conclude that Smith was well on the way to articulating a rather contemporary version of the germ theory of disease. His speculation was of course well beyond either the available evidence or Pasteur's published statements. But, in fact, Smith's understanding of the germ theory of fermentation or of disease was not as clear or certain as we might infer from the above statements. The same papers, despite these responses to Pasteur's work on fermentation, primarily adopt a chemical perspective in discussing putrefaction and disease. The action of disinfectants and the entry of miasma into the air during putrefaction, for example, were both explained in chemical terms.[44] Even stranger, was his suggestion that because air was an excellent disinfectant, strong winds might be expected to remove disease from a district.[45] Perhaps most significant is the fact that at this time Smith did not always insist on the specificity of the relationship between organized particles, or germs, and fermentation, putrefaction, or disease. This aspect is curious since as early as the forties some miasmatic theorists who looked to chemistry for explanatory models insisted that many diseases had specific material causes.[46] In 1866 Smith still entertained the possibility that the cause of the Cattle Plague was generated locally. While he did not claim to know which of the organic bodies in the air of infected cow sheds was the cause of the cattle plague, he said he had "no doubt that one class is the poison itself in its earliest stage."[47] Four years later the specificity of the disease-causing poison was entertained more explicitly when he called on microscopists to examine these "individual [microscopic] forms and to find if every disease has one peculiar to itself, as Mr. Bailey finds every class of plants has its own peculiar pollen."[48]

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[41] R Angus Smith, "On the examination of water for organic matter," *Mem. Lit & Phil. Soc. Manchr.*, 3rd. ser., 1871, *4*· 37-88.

[42] *Ibid* , pp. 42 and 43.

[43] Smith in *Cattle Plague Commission report*, p. 183.

[44] Smith in *Cattle Plague Commission report*, pp 177 and 158 See also Smith, *Disinfectants and Disinfection*, p. 27.

[45] Smith in *Cattle Plague Commission report*, p 177

The truth of the matter is that Smith was groping, trying to fit new evidence into an old conceptual scheme and to realize the implications of a new approach to familiar problems. He recognized at once that a conflict was emerging between scientific models. An epidemic or an endemic disease might be regarded as either a chemical or as a biological phenomenon. One might have, in other words, to choose to follow Liebig or Pasteur. His impulse was to attempt a compromise.[49] In some ways this seemed easy. As he understood them, the work of both Liebig and Pasteur confirmed that disease was a putrefactive process, and that organic material suspended in the air had a crucial role in its causation. Furthermore, Pasteur's work, no less than Liebig's, might be viewed as scientific validation of the sanitarians' demands. The points of difference between the new and the old theories seemed to center on the precise nature of the organic material involved and its mode of action. Were the causal agents composed of organic but nonliving material or of microscopic living forms? Smith at first conjectured that a point existed "where the organic and organized touched so nearly as to be difficult to distinguish."[50] His compromise of 1866 suggested the existence of four classes of disease, whose causal agents varied from purely chemical to the purely biological: 1. gases, 2. vapors, 3. airborne "putrid or decomposing substances," i.e.

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[46] This was the case with William Farr's zymotic theory. See John M. Eyler, *Victorian Social Medicine. The Ideas and Methods of William Farr* (Baltimore. Johns Hopkins University Press, 1979), pp 100-104.

[47] Smith in *Cattle Plague Commission report*, p. 185.

[48] Smith, "On organic matter in the air," p. 76.

[49] For the following comments see Smith in *Cattle Plague Commission report*, pp 155-157, portions of which were reprinted in Smith, *Disinfectants and Disinfection*, pp. 18-27; and Smith, *Air and Rain*, pp. 385-390.

[50] Smith in *Cattle Plague Commission report*, p. 156; reprinted in Smith, *Disinfectants and Disinfection*, p. 23.

miasmata, and 4. organized bodies.[51] The latter, the additions to disease theory, were believed to float in the air, feeding on organic material. They would reproduce readily in a place offering them a fertile seedbed of filth. Other places not offering abundant nutrition were spared infection. He had, in short, added biological agents of disease to his earlier ones, while retaining an emphasis on the atmosphere and on environmental sanitation.

Throughout the 1870s Smith spent much of his time in his official duties as Alkali Acts Inspector devising and employing tests for acids and inorganic particles in the air and adopting a reform posture quite conciliatory to the chemical manufacturers.[52] He also tried vainly in this decade to found a new applied science which he proposed to call chemical climatology.[53] Its purpose would be the investigation of artificial climates, such as those modified by industry or cities, and the effects of those environments on human health. But despite these labors he continued to speculate about disease causation and the role chemistry should play in its study. On certain points his notions had not changed.[54] No doubts had appeared about the dangers posed by decomposing organic material or the utility of chemical analysis for the detection of health hazards. By the late seventies he was testing the air for ammonia.[55] The rationale for the test lay in the fact that ammonia was a product of organic decay. But since ammonia was also produced by other processes and his method could not distinguish its source, this, he recognized, was a negative test. Low ammonia levels indicated a salubrious atmosphere, although the converse was not necessarily true. It is quite clear Smith hoped to establish this procedure as a popular means of monitoring ventilation and air quality just as he had hoped in the previous decade to gain general acceptance of his minimetric analysis.

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[51] *Ibid.*

[52] Summary presentations of his technical work and position on legislation and compensation for damage done by chemical discharges are found in R Angus Smith, "The examination of air," *Proc Roy. Soc Lond.*, 1877, *26:* 512-517; and R. Angus Smith, "What amendments are required in the legislation necessary to prevent the evils arising from noxious vapours and smoke?" *Trans. N.A.P.S.S.* (Liverpool, 1876), pp. 495-534

[53] This was clearly the purpose of his *Air and Rain* His hope is also expressed in Smith, "The examination of air," pp. 512-513.

[54] See for example Smith, *Air and Rain,* p. 493 and Smith, "What amendments are required," pp. 524-527.

[55] R Angus Smith, "The distribution of ammonia," *Mem. Lit & Phil. Soc. Manchr* , 3rd ser., 1879, *6* 267-278. This paper was reprinted in his *Sixteenth Annual Report* [of] *the* [Alkali Acts] *Inspector,* P.P., 1880, XIV, pp. 20-29.

Despite the continuance of his research program, Smith remained uneasy about the conflict he sensed between "the theory of Liebig" and "the theory of Pasteur,"[56]—in other words about the proper scientific model for the study of fermentation and disease. He was now more familiar with Pasteur's work on fermentation and spontaneous generation, and he understood that Pasteur had shown that the decomposition of certain organic substances did not take place in the absence of some vibrio or organism. But Smith was unwilling to abandon Liebig. Pasteur's observation "is no proof that Liebig is wrong when he says that a state of decomposition is transferable from one body to another by chemical action."[57] Smith was convinced that two theories with as much support in nature as Liebig's and Pasteur's must be mutually consistent. Yet he could not effect a graceful reconciliation.[58]

He pointed out that the presence of microorganisms seems necessary for rapid organic decomposition. Without them organic decomposition occurred very slowly, apparently by oxidation alone. The rapidity of changes in diseases such as cholera was analogous only to decomposition where organisms were present. All of this suggested a biological model. Yet Smith hesitated. Everything he had learned had taught him that vital processes were fundamentally chemical. Germs, he insisted, were not "ultimate facts in nature." These fundamentals could only be found in the physical and chemical properties of matter. He seemed to sense the germ theory involved a reversal of the trend in scientific philosophy, a step he was reluctant to take.

He tried to reconcile Liebig and Pasteur by arguing that microorganisms acted as agents for transferring chemical activity. But even as he made this suggestion he realized the chemical model might fail completely in some cases.

> If, for example, a disease were caused by a plant or animal forming a settlement, and by its life obstructing the life of others, it would be a distortion of reason to refer it all to chemical action. The same distortion does not take place when we reason on minute organisms beginning chemical decompositions.[59]

Again he adopted a four-part division, this time of modes of decomposition. First there were purely chemical decompositions. Second were those, such as fermentation, which were initiated by organisms but carried on thereafter as purely chemical changes. Third were "analogies to fermentation and putrefaction in the living animal producing disease by chemical decomposition strictly-speaking."[60] He was uncertain which diseases would be found to belong here, but he believed blood poisoning would be among them. Finally there was the action of germs not producing decompositions analogous to fermentation or putrefaction, but "by self-multiplication obstructing the healthy development of the solids or the normal changes in the blood."[61] More simply, but not exactly consistent with this formulation, Smith spoke, in these years, of disease germs being of two sorts, chemical and vital.[62] This was of course still speculation and reasoning by analogy. Smith realized by 1872 that the "experimentum crucis" would be the discovery of "the exact germ that produces one known disease or more."[63]

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[56] Smith, *Air and Rain*, pp. 494-495.

[57] *Ibid.*, p. 495.

[58] His most extensive discussion of this point and the source for the following discussion is *Ibid.*, pp 494-504. Unlike most sections of this book, this one seems to have been written specifically for this publication

[59] *Ibid*, p 500

This proof was, of course, not long in coming. As early as 1883 Smith referred to Koch's discovery of the tuberculosis bacillus and spoke of disease as a condition in which microorganisms lived at the expense of their victims.[64] Throughout the four years he lived in the 1880s, he referred to microorganisms as causes of disease and of putrefaction.[65] Liebig's theory of fermentation, he acknowledged somewhat grudgingly, had been proven wrong, and it seemed as if chemistry was being pushed aside in these matters by biology.[66] But Smith's fundamental reservations remained. "Under the life of the microzyme chemistry and physics are at work. . . . The various powers of creation are by no means inert in the production and the continuance of disease; and the lower we go in the scale of animal life the more likely are we to meet with causes acting in a manner allied to those of the inanimate world. . . ."[67] So although Angus Smith had come to accept the germ theory and with it a major role for biology in the study of disease, he remained convinced that chemical studies must continue until the two approaches, the biological and the chemical, "blend into one, as they must ultimately do."[68]

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[60] *Ibid.*, p. 501.

[61] *Ibid.*

[62] Smith, "What amendments are required," p. 526. The same distinction is implied in Smith, *Sixteenth Annual Report*, p. 21.

[63] Smith, *Air and Rain*, p. 501

[64] R. Angus Smith, "Address [to Section III. Chemistry, Meteorology and Geology]," *Trans. Sanitary Institute Gt. Brit.*, 1883-84, *5:* 288-289.

[65] See for example R. Angus Smith, *[First] Report to the Local Government Board* [as Inspector under the Rivers Pollution Prevention Act, 1876], P P., 1881, XXIII, pp. 55 and 59.

[66] Smith, "Address," pp. 288-289.

[67] *Ibid.*, p. 289.

It was during the Rivers Pollution Prevention investigation that Smith believed he found the area of chemistry's continuing usefulness in the study of disease, the place, in other words, where chemistry and biology met. This sphere included areas not only of analysis but also of practical intervention. His new analytical techniques involved the detection of gases given off by microorganisms living in water. Since he continued to sample the air by washing samples in distilled water, this technique was applicable to the investigation of both air and water. He first added sugar to his water samples and collected at the surface the liberated gases, mainly carbon dioxide, nitrogen, and hydrogen.[69] The liberation of hydrogen he took as the best indication of the amount of microbial activity. The method was promising, and it seemed to be the only "purely chemical" means of measuring the "amount of organic life" existing in water.[70] It was entirely typical of Smith to try to find anticipations of this method in earlier work he had undertaken for entirely different purposes. Ten years earlier he had added substances present in the air of industrial cities to aqueous mixtures of sugar and yeast.[71] The absence of fermentation was then taken as an indication of inhibiting or disinfecting power. By 1880 the focus of his attention had changed, and the superficially similar method was used to detect the presence of living organisms.

When word of Koch's solid media technique reached him, Smith began adding gelatin to his water samples.[72] Solidifying the medium produced a simple but impressive demonstration of the presence of microbes. Living organisms were easily detected by the liquefication of the gelatin and even more graphically by the appearance of visual specks or vesicles composed of bacteria and the gases they had liberated. Such "points of vitality" could be permanently recorded by photographing the test tubes. Smith was delighted with the results of this method. It promised to become the simple means of testing air and water he had long sought.

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[68] Smith, [*First*] *Report to the Local Government Board,* p. 60

[69] The best description of this technique is found in R. Angus Smith, *Second Report to the Local Government Board on the Examination of Waters* [Rivers Pollution Prevention Act], P.P., 1884, XIX, pp. 6-11.

[70] *Ibid.*, p. 7.

[71] For the earlier discussion see R. Angus Smith, "Annual Report by the [Alkali Act] Inspector of his Proceedings during the Year 1873," *Third Annual Report of the Local Government Board, 1873-74,* P.P , 1874, XXV, pp 434-440. See also *Ibid.*, pp. 440-446 for explanatory comments Smith claimed this as an anticipation of his later work in Smith, [*First*] *Report to the Local Government Board,* pp. 61-62; and Smith, *Second Report to the Local Government Board,* p 3.

[72] For Smith's most complete discussion of this technique see R. Angus Smith, "Note on the development of living germs in water," *Proc Lit. & Phil. Soc Manchr.*, 1882-83, *22* 25-32; or Smith, *Second Report to the Local Government Board,* pp. 28-31. Smith also presented accounts to medical audiences. See for example R. Angus Smith, "On Koch's gelatin process for detecting impurities in water," *Trans. Acad. Med. Ireland,* 1883, *1:* 221-222.

His adoption of Koch's solid media technique was not the only source of inspiration Smith drew from Continental bacteriology in the eighties.[73] Pasteur's studies of the attenuation of chicken cholera organisms illustrated, Smith believed, a very important chemical principle.[74]

> It would appear, however, from the works of Pasteur, that microzymes may be various in activity without changing their appearance, that they may be *attenuated* to any extent, and that their power may be *virulent* to any extent. To say, therefore, that a certain class of microbe is present is not to have a very definite idea, the importance lies in the activity.[75]

This was one reason why Smith was not greatly troubled by one important limitation of his new tests: their failure to distinguish the type of microbe present in his water samples.[76] Because of attenuation, Smith believed that the individual identity of microbes was less important in a practical sanitary test than the "intensity of microzoic life." This intensity is what he believed his methods detected.

But the discovery of attenuation intrigued Smith for a more fundamental reason. It seemed to offer new justification for chemical studies of disease. Smith accepted Pasteur's own suggestion that the action of oxygen was responsible for attenuation.[77] Environmental conditions appeared to have a role in determining pathogenicity. Smith speculated that the "chemical nature of its [disease germ's] surroundings may make the whole difference between dangerous diseases and innocent conditions."[78] Pasteur's work seemed to vindicate Smith's belief that oxygen was a valuable disinfectant. In one of his last papers Smith included a brief and rather confused section in which he stated his belief in the hygienic and therapeutic value of studying the life of microbes in various gases.[79] He reported that he had asked Koch if excess oxygen might not be used to inhibit the growth of tuberculosis bacilli in the lungs of consumptives, and he wondered if anyone had considered testing the effect of oxidation on vaccine material. He had engaged in similar speculation nearly two decades earlier. During his cattle plague studies he tried disinfection therapy on rinderpest-stricken cows.[80] He tried coaxing the sick cattle to inhale oxygen gas and tried internal oxygen therapy by pouring a quart of hydrogen peroxide down the beasts' throats. It seems likely then that Pasteur's disclosure of attenuation revived Smith's hopes for some sort of pneumatic therapy.

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[73] Smith acknowledged that he was in fact using or adopting Koch's technique. Smith, "Address," p 296

[74] For Smith's discussion of this principle see. Smith, *[First] Report to the Local Government Board*, pp 56-60; and Smith, "Address," pp. 268-270.

[75] Smith, *Second Report to the Local Government Board*, p. 7.

[76] For the following opinion see *Ibid* , pp. 4-5 and 7.

[77] Louis Pasteur, "De l'attenuation du virus du choléra des poules," [1880], *Oeuvres de Pasteur*, ed. Pasteur Vallery-Radot, 7 vols. (Paris: Masson, 1933), 6: 323-330. See also Gerald L. Geison, "Louis Pasteur," *D.S B.*; 10: 390-392.

[78] Smith, *Second Report to the Local Government Board*, p. 7.

[79] Smith, "Address," pp. 287-288.

This understanding about oxygen's role in attenuating pathogenic microbes fitted nicely with another observation. Smith found that when city sewage was aerated, it kept for some time without undergoing the customary rapid putrefaction. It seemed as if this were another instance of the same phenomenon, oxygen in the air weakening, although probably not killing, microorganisms.[81] All of this seemed to reaffirm a fundamental sanitary doctrine, the cardinal importance of pure air. In Smith's last major paper, an address to the Sixth Congress of the Sanitary Institute of Great Britain, he attempted to provide a new scientific justification for a number of the old sanitary notions including the importance of household ventilation and the trustworthiness of the sense of smell as an indicator of an unhealthy environment.[82]

Thus at the close of his life Angus Smith probably had a confidence in his approach that he had lacked for nearly twenty years. He had not only been able to accommodate the findings of bacteriology, but he had salvaged a place for chemistry and had shown how science affirmed long-established popular notions about health. As unreasonable as it may seem to us today, Smith also seems to have believed that his research had contributed to the new understanding of the cause of disease.

We have been considering not the history of a discovery but rather the impulses and motives for research that failed. It is obviously true that this study is very limited in scope and contains some pitfalls. It would be a mistake to generalize too boldly from a slightly eccentric character like Angus Smith. In matters of public health and medicine Smith was an outsider. As a chemist with neither biological nor medical training he might be expected to adopt a perspective somewhat different from physicians or lay sanitarians. That he apparently made no mention of Joseph Lister's antiseptic surgery, despite the fact that its original rationale was compatible with his own ideas in the seventies, is merely an indication that he did not follow medical literature and continued to look to the laboratory rather than to the clinic for inspiration and confirmation. His thoughts of application were focused almost exclusively on sanitation. It is certainly also true that we have been discussing only one aspect of Smith's investigations. He devoted much time and effort to the study of inorganic pollutants as well. These, he believed, were detrimental to health but were not capable themselves of producing disease.[83] More fundamentally one might even argue that Smith went through no genuine intellectual conversion. He never took an interest in individual microbes nor did he attempt to produce disease experimentally with the organic material he collected.[84] Rather he took common ideas about disease and attempted to apply chemistry to their elucidation or validation. Although he acknowledged the germ theory, his perspective, in some important ways, remained that of a chemist and an environmentalist.

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[80] Smith in *Cattle Plague Commission report*, p. 185

[81] Smith, "Address," pp. 279 and 275-276. See also Smith, [*First*] *Report to the Local Government Board*, pp. 26-27, 29, and 59-60.

[82] Smith, "Address," pp 267 and 270-271

There is truth in each of these observations. But we cannot on that account dismiss Smith's attempts to study disease as historically insignificant. They may not have contributed directly to our current understanding of the etiology of infectious disease, but they are representative of several features of mid-Victorian attitudes. It is important to notice not only that a Victorian chemist would undertake major studies of disease causation but also that his work attracted the attention and the respect of segments of the scientific and medical communities. His earliest papers were solicited by the British Association for the Advancement of Science.[85] Reports and reviews of his works in medical journals were consistently favorable.[86] These reviewers suggested that Smith's work was the type of investigation that was needed to establish hygiene on a scientific basis and hence to insure its progress. Smith's results and advice were also sought by sanitary reformers, both lay and medical.[87]

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[83] Smith, "Some ancient and modern ideas," pp 60-61.

[84] Part of this objection has been raised in Gibson and Farrar, "Robert Angus Smith," p. 253.

[85] *Ibid* The papers involved were Smith, "On the air and waters of towns" [1848]; and "On the air and water of towns. Action of porous strata, water and organic matter" [1851].

[86] For representative comments see: *Med. Times & Gazette*, 1859, *1*: 64; *Ibid.*, 1865, *2*. 375; *Ibid.*, 1870, *1* 444, or *Lancet*, 1870, *1*. 589; *Ibid.*, 1872, *1*: 798 and 830; *Brit Med. J*, 1872, *1*: 557-558; and *Brit. & For. Med. Rev*, 1861, *28*: 430, 433, and 435.

[87] Smith wrote a pamphlet on the analysis of the air for Florence Nightingale, who had it printed at her

Knowledgeable contemporaries then were convinced of the significance of his work. That reason alone makes it historically important.

His work was probably of greatest significance between the late forties and the middle sixties, the period when the expectations of elucidating the causes of disease by purely chemical means were at their peak. Smith used common notions about the origin and process of disease to construct a research program which seemed to offer great promise. There is little doubt that it was the hope of discovering the airborne agents of disease and of transforming traditional medical ideas of disease as a fermenting process and the practical dictates of sanitary dogma into an exact laboratory science that drove Smith on in this research program and which attracted the interest of his peers.

After the Cattle Plague Commission Smith's ideas are more confused and difficult to follow. The historian's task is complicated by Smith's practice of quoting long portions from his previous papers, even when those quoted portions seem to contain ideas he had since modified. But even here his work is instructive. His efforts to come to terms with recent microscopic research illustrate not only how firm was his commitment to chemical analogies, theories, and methods, but they also suggest fundamental philosophical reservations about vital laws, generalizations, in other words, that were not grounded on the physical laws of nature. In spite of these commitments and biases, Smith was remarkably quick to acknowledge some Continental microscopic studies and to draw bold generalizations from them. This acceptance and these generalizations were, however, rather selective. His scientific bias made him eager, for example, to adopt Pasteur's findings on attenuation but rather slow to realize that Pasteur's work suggested that microbes were not produced by putrefaction. The twists and turns of his mind warn us to beware of simple, categorical statements about disease theory in the mid-Victorian period or about the means by which the Continental work establishing the germ theory of disease was received in Britain. Smith's example reminds us also of how much we need a thorough historical study of the fermentation analogy of disease and the chemical theories of disease in the nineteenth century.

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own expense and distributed in India, Edward Cook, *The Life of Florence Nightingale,* 2 vols. (London: Macmillan, 1913), *2:* 56. William Farr also used Smith as an authority on the differences of town and country air, William Farr, "Density or proximity of population. its advantages and disadvantages," *Trans. N.A.P.S.S.* (Cheltenham, 1878), p. 531.

PHYSIOLOGICAL THEORY AND THERAPEUTIC EXPLANATION IN THE 1860s: THE BRITISH DEBATE ON THE MEDICAL USE OF ALCOHOL*

JOHN HARLEY WARNER

The 1860s witnessed an animated debate among members of the British medical profession on "alcoholic therapeutics." This controversy was not principally about the use of alcohol, which had a prominent place in medical practice; rather, the real issue was the nature of the scientific evidence that would be taken as support for the theoretical models that explained alcohol's therapeutic use. In the 1860s, many British physicians utilized the new physiological research on alcohol to restructure fundamentally the current theories of alcohol's therapeutic action. Changing physiological teachings—postulating in turn a nutritive value for alcohol, then its total elimination from the body and worthlessness as nourishment, and later, its power to lower bodily temperature—led to changes in therapeutic theory. However, the clinical use of alcohol exhibited a remarkable immunity to attack. When faced with scientific challenges to widely held therapeutic views, the bulk of physicians abandoned prior theory but reaffirmed their faith in prior practice. Their subsequent theory building, guided by the new dictates of physiology, explained alcohol's therapeutic efficacy in terms acceptable within the new framework of scientifically respectable knowledge. At the same time, these challenges stimulated further physiological experimentation by physician-scientists who maintained both the validity of prior theory and the correctness of its underlying physiological premises.

British medical men vigorously defended the priority of clinical experience over the indications of experimental science. "There is an apparent discrepancy," wrote the editors of the *Lancet* in 1862,

> which will surprise none but intemperate teetotalers—between the deliverance of mere chemists or physiologists on the subject of alcohol and that of practical

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> physicians. There is a great difference between a purely chemical or physiological view of man and his wants, and the view which physicians in actual practice have presented to them of man in hard matter-of-fact conflict with things as they are.[1]

The editors of the *British Medical Journal* stated their position on the alcohol question even more emphatically: "We are certainly not disposed to allow the chemist or the physiologist to settle a question of this kind—for there is one great authority, experience, which is greater than theirs."[2]

On the other hand, physicians drew on the physiological knowledge available to them to explain and legitimize their practice, and as this body of scientific knowledge changed, so too did their therapeutic theories. But theory confirmed practice; practice did not derive from theory. Thus when laboratory research led physician-scientists to propose new interpretations of alcohol's physiological action, these doctrines could be evaluated on the basis of their explanatory cogency without threatening the sovereignity of clinical authority. Clinical experience could be explained by a variety of theories. Medical theory building, however, was constrained by the tacit requirement that its products must not contradict existing therapeutic practice. The debate on the use of alcohol as therapy illustrates clearly the therapeutic relevance of experimental science in the 1860s: most British physicians used scientific knowledge to explain and legitimize—but not to validate or test—therapeutic practice.

A revolution had occurred in British medical practice between the early 1830s and the 1850s. Therapeutics largely underwent a reversal from the practice of depletion using bloodletting and purgatives to stimulation with alcohol and nourishment; the brandy bottle replaced the lancet. One prominent clinician and professor of medicine could comment by 1865:

> We can hardly conceive of a revolution in practice more complete. Venesection is now, from being the most frequent, the rarest of operations. In place of the loss of blood, we have exhibited stimulants, in place of a system of almost complete starvation, we have the careful use of nutriment.[3]

In the aftermath of this revolution, alcohol became, for many physicians, a panacea for acute diseases, reaching the zenith of therapeutic fashion in the late 1850s and 1860s.[4] Physicians "brandied" patients suffering with conditions as diverse as pneumonia, typhus, and rheumatic fever. For the more zealous votaries of "alcoholic therapeutics," prescriptions of as much as three pints of brandy a day, administered for between several days to over a month, were not uncommon.[5]

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[1] "The habitual use of alcohol," *Lancet*, 1862, *2*: 335.

[2] "The week," *Brit Med. J*, 1865, *1* 68.

[3] William Stokes, "The address in medicine," *Brit Med J*, 1865, *2*: 134

[4] The explanation that physicians formulated in the 1850s to explain this change in practice fostered the rise of alcohol to the status of a panacea. The change-of-type theory of disease formalized the notion that

At about the same time, the British temperance movement was coming to the fore as a potent social and political force. The temperance movement emerged in Britain in the late 1820s and began to take on distinct form in the early 1830s, when the British and Foreign Temperance Society was organized. During the 1850s and 1860s, and especially following the founding of the United Kingdom Alliance in 1853 to promote prohibition, the temperance movement's power at Westminister and its moral and social influence throughout Britain grew considerably.[6] Temperance leaders actively solicited physicians' support. In the mid-nineteenth century the idea that alcohol was a force-giving food, stimulant and necessary part of a proper diet was firmly entrenched in British popular thought.[7]

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practice had changed because disease had changed since the early 1830s. From an overstimulating type, which demanded depletive therapy like bloodletting, it became an enfeebling type, which required supportive and stimulative treatment with nutriments and alcohol. Moreover, because most diseases had shifted to a debilitating type, the proper treatment for most diseases was stimulation—and alcohol was the stimulant of choice. The change-of-type theory and its role in therapeutic explanation are discussed in John Harley Warner, "'The nature-trusting heresy'. American physicians and the concept of the healing power of nature in the 1850's and 1860's," *Perspectives in Amer. Hist* , 1977-1978, *11* 303-308, 310-313, and in *idem*, "Therapeutic explanation and the Edinburgh bloodletting controversy: two perspectives on the medical meaning of science in the mid-nineteenth century," *Med Hist.*, forthcoming. For British statements of the change-of-type theory, see Robert Christison, "On the changes which have taken place in the constitution of fevers and inflammations in Edinburgh during the last forty years," *Edinburgh Med J* , 1858, *3* 577-595, and 1858, *4:* 38-48; Henry Kennedy, "On the change of type theory of disease," *Edinburgh Med J.*, 1859, *4.* 624-640; William Orlando Markham, *Bleeding and Change of Type of Diseases Being the Gulstonian Lectures for 1864* (London: J. Churchill and Sons, 1866); and "Transactions of the Medico-Chirurgical Society of Edinburgh," *Edinburgh Med J.*, 1856, *1.* 947-953. Guenter B. Risse compares the nineteenth century change-of-type theory to eighteenth century rationalizations for therapeutic change in "Epidemics and medicine: the influence of disease on medical thought and practice," *Bull. Hist Med.*, 1979, *53* 515.

[5] Robert Bentley Todd, *Clinical Lectures on Certain Acute Diseases* (London. John Churchill, 1860), pp. 120-121, 130, 138-142.

[6] The best survey of the British temperance movement is Brian Harrison's *Drink and the Victorians: The Temperance Question in England, 1815-1872* (Pittsburgh: University of Pittsburgh Press, 1971), see esp. Ch. 11, "Mounting temperance pressure: 1869-1870." See also Norman Longmate, *The Water Drinkers A History of Temperance* (London· Hamish Hamilton, 1968), and Fred A McKenzie, *Sober by Act of Parliament* (London: Susan Sonnenschein, 1896). An informative but Whiggish discussion is J. N. Stearns, ed., *Temperance in All Nations; History of the Cause in All Countries of the Globe*, 2 vols. (New York: National Temperance Society and Publishing House, 1893), 1: 193-282.

[7] Mark Keller, "Alcohol in health and disease· some historical perspectives," *Ann N.Y Acad Sci* , 1966, *133.* 821-822; E A. Parkes, "The medical declaration respecting alcohol," *Practitioner*, 1872, *8.* 83; J. W. Turner, "Alcohol inconsiderably prescribed," *Med. Times and Gazette*, 1872, *1* 53.

Temperance activists asked medical men to bring forward the judgment of physiology against this popular belief and thereby help suppress the social use of alochol.[8] Physicians were the spokesmen of science, and consequently "the intelligent and reading classes appeal to them in justification of their habits of indulgence or abstinence; they take or avoid alcoholic liquors systematically, and on principle, and the practice is based upon scientific truth or scientific error."[9]

But until the 1870s, British physicians were little involved in the temperance movement and lent meager support to its social and legislative efforts.[10] The scientific evidence available to them favored popular rather than teetotalists' conceptions of alcohol's physiological action, and the judgments of science and prevailing medical opinion on the nutritional status of alcohol hindered rather than fostered temperance objectives. Moreover, the supporters of the temperance movement included in their ranks many men who were committed to other reform movements—such as hydropathy, vegetarianism, and the antivivisection and antivaccination campaigns—with objectives that often conflicted with the interests of orthodox medicine.[11] To be sure, a few physicians furnished the temper-

[8] Brian Harrison, "Drunkards and reformers: early Victorian temperance tracts," *Hist. Today*, 1963, *13:* 180; *idem, Drink and the Victorians*, p. 307; Amy A. Pruitt, "Approaches to alcoholism in mid-Victorian England," *Clio Medica*, 1974, *9:* 93.

[9] Daniel Hooper, "The alcohol question," *Lancet*, 1861, *1:* 507.

[10] Brian Harrison, "Drink and society in England, 1815-1872: a critical bibliography," *Int. Rev. Soc. Hist.*, 1967, *12:* 211. See also Ian Inkster, "Marginal men: aspects of the social role of the medical community in Sheffield, 1790-1850," in John Woodward and David Richards, eds., *Health Care and Popular Medicine in Nineteenth Century England: Essays in the Social History of Medicine* (London: Croom Helm, 1977), pp. 128-163, "Appendix—the medical community and voluntary associations," on pp. 152-153. The temperance movement was more successful in capturing medical support in the 1870s. The National Temperance League began publishing the *Medical Temperance Journal* in 1869 to influence medical opinion on the alcohol question, and participated in planning the London Temperance Hospital, which was completed in 1879. In 1871 the League initiated the "Medical Declaration Respecting Alcohol," using political pressure to secure the signatures of 269 prominent physicians. The Declaration stated that physicians should prescribe alcohol "with a grave sense of responsibility" and offered medical support for legislation to restrict the social use of alcohol. Many physicians vigorously attacked the League's political tactics and resented this intrusive lay attempt to mold professional opinion. See Martha M. Allen, *Alcohol. A Dangerous and Unnecessary Medicine, How and Why* (Marcellus, N.Y.: Department of Medical Temperance of the National Woman's Christian Temperance Union, 1900), pp. 3-15, 38; "The declaration respecting alcohol," *Med. Times and Gazette*, 1872, *1:* 88, Harrison, *Drink and the Victorians*, pp. 307-308, "Islington Medical Society—Declaration on alcohol," *Med. Times and Gazette*, 1872, *1:* 662; "Medical declaration respecting alcohol," *Lancet*, 1872, *2:* 901; W. Moxon, "On the medical declaration concerning alcohol," *Med. Times and Gazette*, 1872, *1:* 21-22, and George B. Wilson, *Alcohol and the Nation: A Contribution to the Study of the Liquor Problem in the United Kingdom from 1800 to 1935* (London: Nicholson and Watson, 1940), pp. 262-263, 266.

[11] Brian Harrison, "The British prohibitionists, 1853-1872: a biographical analysis," *Int. Rev. Soc. Hist.*, 1970, *15:* 399, 401, 422, 434, 440; *idem, Drink and the Victorians*, pp. 161-162, 224.

ance movement with medical testimony condemning drink, and most sober medical men were willing to denounce the evils of alcoholism.[12] Yet teetotal physicians who took active roles in the temperance movement were self-styled heretics who even claimed that they were persecuted by their medical brethren.[13]

The rise of alcohol as therapy in the 1850s and 1860s exacerbated the tension between the medical profession and the temperance movement. Temperance activists charged that the medical example—the liberal prescribing of alcohol in the belief that it nourished and invigorated the enfeebled body—fostered the public's faith in the nutritive value of alcohol, legitimized alcohol's social use, and unduly encouraged demand for alcohol treatment.[14] The annual report of the National Temperance League for 1869-70 stated:

> Amongst the numerous obstacles that have impeded the progress of the Temperance Reformation, none, perhaps, have been more powerful and perplexing than those which have sprung from the attitude generally assumed by the medical profession in regard to the use of intoxicating drinks. Under the influence of medical sanction and recommendation, the erroneous opinions everywhere prevalent respecting the value of alcohol in health and disease have been strengthened and extended, and the results, moral as well as physical, have, in thousands of instances, been of the most ruinous and disastrous character.[15]

Furthermore, temperance spokesmen asserted that alcohol therapy engendered serious physical and moral effects. They charged that alcoholic prescriptions often exposed the young and innocent patient to the temptations of drink for the first time, while they forced the reformed drunkard to revert to his former habits. Temporary use of alcoholic stimulants under medical direction frequently seduced patients into habitual nonmedical use of alcohol, chronic alcoholism and moral degradation.[16]

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[12] William F. Bynum, "Chronic alcoholism in the first half of the 19th century," *Bull. Hist Med.*, 1968, *42*· 160-185, Harrison, *Drink and the Victorians*, p. 307; John G. Woolley and William E. Johnson, *Temperance and Progress of the Century* (London: W. and R. Charles, 1905), pp. 364-367

[13] Harrison, *Drink and the Victorians*, pp. 41, 156, 307. Benjamin Ward Richardson described the profession's ostracism of the teetotal physician John Higginbottom, who had been led by his temperance commitments to "the sin of disbelief in the ancient faith," in *Vita Medica· Chapters of Medical Life and Work* (London. Longmans, Green, 1897), pp. 357-359, 377.

[14] See "Alcoholic therapeutics," *Lancet*, 1862, *2*· 510; Henry Carter, *The English Temperance Movement. A Study in Objectives*, 2 vols. (London· The Epworth Press, 1933), 1: 52-53; and S. Wilkes, "Clinical lectures on the indiscriminate use of alcoholic stimulants in disease," *Lancet*, 1867, *1*· 505.

[15] Quoted in William Gourlay, *"National Temperance"· A Jubilee Biography of the National Temperance League* (London: Richard J. James, 1906), p. 158.

[16] This is discussed in "Alcohol and the doctors," *Brit Med. J.*, 1866, *2* 746, Francis Edmund Anstie, "On the use and abuse of alcohol by women," *Practitioner*, 1871, *6* 87-88; W T Gairdner, "On the

Physicians countered such charges of iatrogenic corruption. They asserted that their therapeutic management was not in conflict with social and moral arguments about alcohol because they were treating disease. They sought to use scientific criteria for clinical justification. By appealing to science, physicians hoped to legitimize the medical use of alcohol on the basis of physiological knowledge and thus strengthen the authority for their clinical practice.

Yet physicians looked to science to confer clinical authority only in a very restricted sense. While science represented a higher source of authority for therapeutic practice than the social and moral arguments of temperance spokesmen, the ultimate locus of authority for clinical practice was neither the temperance lecture podium nor the physiological laboratory, but rather the patient's bedside. Physicians believed, based on their clinical experience, that alcohol was an efficacious therapeutic agent.

Robert Bentley Todd, a practicing London physician and popular clinical teacher who held the chair in physiology and morbid anatomy at King's College, was the most influential proselytizer of "alcoholic therapeutics" in mid-nineteenth century Britain.[17] Todd maintained that two interrelated phenomena—depression of vital power and waste or disintegration of tissue—characterized all acute diseases. Inflammation, which Todd regarded as a process of deranged nutrition that accompanied acute disease, drew nutriments from the blood for the formation of morbid products like pus. As the supply of nutriments from food became exhausted, the inflammatory process began to feed upon the healthy tissues of the body, especially the nervous tissue. By imposing an abnormal drain upon the nutrient supply, inflammation also diverted fuel from the process of organic combustion that maintained animal heat. Oxygen that normally would have oxidized food now attacked tissue—particularly nervous matter—and used the products of this tissue breakdown to sup-

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limits of alcoholic stimulation in acute disease," *Brit Med. J*, 1868, *2*: 199; and Henry Mudge, "Alcoholic stimulants in fever," *Med Times and Gazette*, 1863, *2* 630.

[17] On Todd's career, see F. F. Cartwright, "Robert Bentley Todd's contribution to medicine," *Proc Roy. Soc. Med*, 1974, *67* 893-897; "Robert Bentley Todd," *Proc. Roy Soc.*, 1860, *11*: xxxii-xxxiv; "The late Robert Bentley Todd, M.P., F.R.S.," *Brit Med. J.*, 1860, *1*. 111-112; and "The late Dr Todd," *Lancet*, 1860, *1*: 151 The clinical origins of Todd's practice can be traced to the influence of the Dublin physicians Robert Graves, Todd's mentor, and William Stokes See Robert Graves, "Observations on the treatment of various diseases," *Dublin J. Med Sci.*, 1832, *1*: 292-296; *idem*, *A System of Clinical Medicine* (Dublin: Fannin, 1843), pp. 183-189; "In memoriam: Robert Bentley Todd," *Med Times*, 1860, *1*: 149; and William Stokes, "Researches on the state of the heart, and the use of wine in typhus fever," *Dublin J Med. Sci*, 1839 *4*, 68.

port production of animal heat. This destruction of nervous tissue led to depression of the organism's vital power and enfeeblement of the patient.[18]

The therapeutic practice that Todd's model of pathogenesis informed sought to minimize the destructive effects of these morbid phenomena by upholding the vital power of the body and preventing the wastage of tissue. Todd held that natural processes alone cured disease, claiming that no acute disease was curable by the direct influence of any known drug or remedial practice. However, therapeutic support with alcohol and other nourishment could "excite, assist, or promote these natural curative processes," sustaining the debilitated system and keeping the patient alive until nature provided a cure.[19] Alcohol prevented the wastage of nervous tissue by offering itself up for combustion and directly stimulated the nervous system, strengthening vital force.[20]

In constructing his theory of alcohol's therapeutic action, Todd drew heavily on the principles of nutritional physiology that Justus Liebig had put forward in the early 1840s. Liebig divided all food substances into nitrogenous, plastic elements like vegetable fibrine, albumin and animal flesh, which were converted in the body to organized tissue, and non-nitrogenous, respiratory elements like fat, starch and alcohol, which supported the process of respiration and the production of animal heat.[21] "Of all the respiratory matters," Liebig wrote, "alcohol acts most rapidly."[22] Alcohol was absorbed rapidly into the bloodstream and oxidized, giving water and carbonic acid—which were excreted by the lungs—and animal heat. Moreover, alcohol could protect the body's tissues from destructive oxidation. Alcohol's "power" to combine with oxygen was greater than that of living tissue, and therefore, Liebig claimed, it forestalled the wastage of tissue or transformation of the matter of healthy structures into food by oxidation.[23]

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[18] Todd, *Clinical Lectures*, pp viii-x, 260-262, 309-310, "Review of Robert Bentley Todd *Clinical Lectures on Certain Acute Diseases*," *N. Amer. Med. Chir. Rev* , 1860, *4:* 801-810; and Alexander Tweedie, "Lectures on fevers: being the Lumleian Lectures delivered before the Royal College of Physicians of London 1858-59; comprising a description of the distinctive characters, pathology, and treatment of the general forms of continued fever," *Lancet*, 1860, *1:* 590. See also Samuel D. Gross, "Brunonianism, Toddism, and other isms," *N. Amer. Med. Chir. Rev.*, 1861, *5:* 66-83.

[19] Todd, *Clinical Lectures*, pp. vii-viii, 254, 258-260, 262-263. Cf. the therapeutic philosophy held by other physicians in the 1850s and 1860s who stressed the role of the healing power of nature; see Warner, "'The nature-trusting heresy,'" pp. 291-324.

[20] Todd, *Clinical Lectures*, pp. 260, 269-270, 449-465.

[21] Justus Liebig, *Animal Chemistry, or Organic Chemistry in Its Application to Physiology and Pathology*, ed. William Gregory (Cambridge, Mass.: John Owen, 1842), p. 92. Henry M. Leicester summarizes concisely Liebig's nutritional doctrines in *Development of Biochemical Concepts from Ancient to Modern Times* (Cambridge, Mass.: Harvard University Press, 1974), pp. 171-173.

[22] Justus Liebig, *Familiar Letters on Chemistry, in Its Relations to Physiology, Dietetics, Agriculture, Commerce, and Political Economy*, ed. John Blythe (London: Walton and Mabery, 1859), p. 468. François Magendie, *Précis élémentaire de physiologie*, 2 vols (Paris: Méquiquon-Marris, 1825), 1: 187 had observed in experiments performed on living animals in 1825 that the bloodstream rapidly took up ingested alcohol. He found that one half-hour after he gave alcohol to a dog, the extracted chyle contained no alcohol, whereas alcohol could be extracted from the blood by distillation.

Todd's belief that alcohol directly stimulated the nervous system did not find clear support in Liebig's nutritional schema. However, abundant physiological evidence collected since the 1820s suggested that alcohol had a particular affinity for nervous matter.[24] The English physiologist William B. Carpenter had proposed in 1850 that alcohol in the blood was "specially drawn out of the circulatory current by the nervous matter, and incorporated with its substance."[25] Alcohol, Carpenter maintained, was a stimulant that increased vital force and excited the nervous system.[26] Todd could thus draw on reputable scientific authority for substantiation of his assertion that alcohol increased nervous activity by nourishing nervous matter.

The theories of alcohol's physiological action held by Todd, Liebig and Carpenter all had as a fundamental premise the idea that none of the alcohol taken into the body was excreted unchanged, because it was entirely transformed in the system.[27] As a respiratory aliment, alcohol was broken down in the body by oxidation; as a nervous stimulant, alcohol nourished and was also transformed into nervous tissue.

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[23] Liebig, *Animal Chemistry*, pp. 227-231; *idem*, *Familiar Letters on Chemistry and Its Relation to Commerce, Physiology, and Agriculture*, ed. John Gardner (New York: D. Appleton, 1843), p. 64 Apollinaire Bouchardat, the chief pharmacist of the Hôtel-Dieu and professor of hygiene of the Faculté de Médecine, and his collaborator C. M. S. Sandras confirmed Liebig's conception of alcohol's physiological action in 1846 They reported their experiments in "De la digestion des boissons alcooliques et de leur rôle dans la nutrition," *Arch. gén. de méd* , 1846, supp : 233-244. By the following year, the editors of a British medical journal could state: "We believe that no physiologist of repute would now be found to maintain any other doctrine." See "The physiological effects of alcohol. Temperance and teetotalism," *Brit. Foreign Med. Chir. Rev.*, 1874, *24:* 525

[24] See Robert Christison, *A Treatise on Poisons in Relation to Medical Jurisprudence, Physiology, and the Practice of Physic*, 2nd. ed. (Edinburgh: Adam and Charles Black, 1845), p. 450; John Cooke, *A Treatise on Nervous Diseases*, 2 vols. (London: Longman, Hurst, Rees, Orme, and Brown, 1820), 1: 219-222; and John Percy, *An Experimental Inquiry, Concerning the Presence of Alcohol in the Ventricles of the Brain, after Poisoning by that Liquid, together with Experiments, Illustrative of the Physiological Action of Alcohol* (London· Hamilton, 1830), pp. 12-62.

[25] William B Carpenter, *On the Use and Abuse of Alcoholic Liquors in Health and Disease* (Philadelphia Lea and Blanchard, 1850), p. 37. Although Liebig stated plainly that only plastic, nitrogenous aliments contributed to the formation of such tissues as blood, skin and muscle fiber, the nutrition of the nervous system was more ambiguous. The substance of the brain and nerves contained albumin, but it also contained certain fatty acids that did not contain nitrogen. Nervous tissue, Liebig claimed, formed from both nitrogenous and non-nitrogenous aliments, and therefore it was conceivable that a substance like alcohol, although it generally was termed a respiratory aliment, could contribute to nervous nutrition (Liebig, *Animal Chemistry*, pp. 43, 103, 174-175).

[26] Carpenter, *Alcoholic Liquors*, pp. 28-29, 36, 93

This notion that alcohol was retained and transformed in the system also was reflected in the concept of spontaneous human combustion which received considerable medical, scientific and lay attention in the nineteenth century. Spontaneous human combustion supposed that habitual indulgence in alcoholic liquors converted the living organism into a combustible body that could be ignited by a spark or that could catch fire spontaneously, burning without extraneous fuel until the tissues were reduced to ashes. A variety of mechanisms were put forward to explain this phenomenon, generally suggesting that the body was rendered inflammable either by alcohol accumulation in the tissue or, more frequently, by the products of alcohol transformation within the body.[28] Leading physicians and scientists debated the possibility of spontaneous human combustion as a serious medico-legal question, while Charles Dickens and Emile Zola found in it a dramatic method of eliminating unwanted characters.[29]

British physicians frequently had included conservative doses of alcohol in their prescriptions after the early 1830s, but Todd's teachings in the 1850s made the liberal therapeutic use of alcohol fashionable and respectable. Todd provided the "scientific physician" with a clearly articulated theoretical justification for the use of alcohol, firmly grounded in the doctrines of contemporary physiology. "The teachings of Dr. Todd," the physiologist Benjamin Ward Richardson later remarked, "led many practitioners to 'rely,' as they expressed it, on alcohol, to the exclusion, in some instances, of all other active treatment."[30]

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[27] *Ibid.*, pp. 28-29; Liebig, *Animal Chemistry*, p. 227; Todd, *Clinical Lectures*, pp 454, 463-464 However, Todd recognized that when ingested in excessive quantities, very small amounts of alcohol could pass out of the body unchanged in the air expired from the lungs (pp. 463-464), and Carpenter acknowledged that the kidneys, skin and lungs could eliminate minute portions of ingested alcohol (pp 28-29)

[28] See, for example, M. A. Devergie, "Mémoire sur la combustion humaine spontanée," *Ann d'hygiène pub. et de méd. légale*, 1851, *46:* 407-411, 421-422, 424-432; John Grigor, "Case of spontaneous combustion and death of the human body in the open air—spontaneous or not?" *Monthly J Med Sci.*, 1852, *15:* 560; H. von Guttceit, "Combustio spontanea?" *Med Zeitung Russlands*, 1857, *14* 170-171; Alexander Ogston, "On spontaneous combustion," *Brit. Foreign Med. Chir. Rev* , 1870, *14*· 195-196; and Edmund Sharkey, "Spontaneous human combustion," *Dublin J Med. and Chem. Sci* , 1833, *2* 329-333. Michael Harrison discusses this phenomenon in *Fire from Heaven. A Study of Spontaneous Human Combustion in Human Beings* (New York: Methuen, 1978).

[29] A particularly infamous murder trial that hinged upon the question of spontaneous human combustion, which drew testimony from scientists like Liebig and Theodor Bischoff, was reviewed in Ambroise Tardieu and X. Rota, "Relation médico-légale de l'assassinat de la comtesse Goerlitz, accompagnée de notes et réflexions pour servir à l'histoire de la combustion humaine spontanée," *Ann d'hygiene pub. et de méd. légale*, 1850, *44.* 191-231, 363-414, and 1851, *45*· 99-131, and "Trial of John Stauff for the murder of the Countess of Goerlitz—alleged spontaneous combustion of the body—report of the Hessian Medical College on the case," *London Med. Gazette*, 1850, n s. *11*· 899-903, 944-949 On spontaneous human combustion in literature, see Hans-Jost Frey, "Combustio spontanea," *Schweizer Monatschefte*, 1964-5, *44* 870-882; Gordon S Haight, "Dickens and Lewes on spontaneous human combustion," *Nineteenth Cent. Fiction*, 1955, *10.* 53-63; J. van Santern Kolff, "Emile Zola über Antoine Macquarts Selbstentbrennung," *Magazin fur Lit.*, 1894, *63* 891-894; and John Rathbone Oliver, "Spontaneous combustion—a literary curiosity," *Bull Hist Med.*, 1936, *4* 559-572.

But the coincidence of two events at the beginning of the 1860s marked a crisis for Toddism and ushered in a singularly visible controversy within the British medical profession. Todd died early in 1860, stripping alcohol therapy of its most devout and influential advocate.[31] At the same time, researchers in France and England brought forward new experimental evidence purporting to show that alcohol was not transformed in the organism but rather was eliminated unchanged from the body, thereby negating the most fundamental of Todd's premises regarding the physiological action of alcohol. This evidence provided opponents of Toddism with scientific grounds for attacking Todd's theory and practice. It also constrained Todd's disciples either to question the therapeutic value of alcohol, construct new explanations for its beneficial action in the diseased organism, or provide convincing experimental evidence to defend their threatened beliefs.

Ludgar Lallemand and Maurice Perrin, professors at the Ecole Impériale de Médecine et Pharmacie Militaire in Paris, and the chemist, J. L. P. Duroy, undertook a study, in 1859, of the physiological effects of anesthetics and compounds like alcohol that seemed to have effects similar to those which they regarded to be "true anesthetics." Their experiments on the transformation and elimination of alcohol led to wholly unanticipated results, which were presented before the Académie des Sciences late in 1859.[32] In their first set of experiments on alcohol's elimination, Lallemand and his colleagues detected alcohol in exhalations of the breath and skin and in urine. Four men, each given 150 grams of brandy, breathed for three hours into a refrigerated apparatus in which their exhalation was condensed. Distillation of the condensate yielded two grams of a liquid having the odor of alcohol and which turned a chromic acid solution from red to green, indicating the presence of alcohol.[33] Lallemand next gave four men three bottles of wine and 200 grams of cognac, collected and distilled the urine they voided within four hours, and obtained liquid with the smell and taste of alcohol which burned when placed in a flame; the distillate from a later sample gave a positive chromic acid test. Finally, Lallemand placed a small greyhound in a glass chamber with its head extending outside the apparatus so that the dog's body was exposed to the air in the chamber but the air was not contaminated by the dog's breath. Twenty minutes after the dog ingested alcohol, air from the chamber was drawn through a tube containing a chromic acid solution. This turned green after about fifteen minutes, indicating that the dog's skin had given off alcohol.[34]

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[30] Benjamin Ward Richardson, "Notes on the administration of alcohol in the treatment of disease," *Lancet*, 1876, *1* 6. See "The brandy treatment," *Dublin Med. Press*, 1860, *2:* 104; Thomas Inman, *Foundations for a New Theory and Practice of Medicine* (London: John Churchill, 1860), pp 246, 269, 279-284; Robert D Lyons, *A Treatise on Fevers, or Selections from a Course of Lectures on Fever, Being Part of a Course of the Theory and Practice of Medicine* (London. Longman, Green, Longman, Roberts, 1861), pp 144, 291, John Pursell, "The alcoholic treatment in exhausting diseases," *Brit. Med. J.*, 1860, *2.* 722-723, Anthony W. Whitford, "On the effects and uses of alcohol," *Trans Med Soc King's College*, 1857-1858, *2*· 116-133, and "Wine in pneumonia," *Lancet*, 1860, *2.* 110

[31] Todd's student Francis Anstie later remarked that "so long as the great advocate of alcoholic medication was alive, a certain prudent reticence distinguished most of those who from time to time objected to his doctrines . [But] his death liberated a hundred tongues and pens, and a chorus of reproach against his memory He, forsooth, was the great heretic, who had departed from all sound and reasonable doctrine, and had promulgated a system of treatment which not only was disastrous in its effects on disease, but undermined the morals of the patients and left them prey to the vice of drinking, even if they escaped immediate death. The cry was an alarming one, and . . . it undoubtedly produced a great reaction." ("On indiscriminate stimulation in chronic disease," *Practitioner*, 1869, *3* 34).

In a second set of experiments, Lallemand and his co-workers studied the transformation of alcohol in the organism. The Prague physiologist, J. Duchek, had concluded in 1853, from experiments he had performed to elaborate Liebig's idea that alcohol was a respiratory aliment, that the oxidation of alcohol in the blood to give carbonic acid and water produced aldehyde, acetic acid, and oxalic acid as intermediate products.[35] Lallemand attempted to detect these products in blood extracted from a dog that had ingested alcohol, but because all of the tests were negative, he concluded that these compounds were not present in the blood.[36]

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[32] Ludgar Lallemand, "Du rôle de l'alcool et des anesthésiques dans l'organisme," *Union méd* , 1859, s. 2, *4:* 179-183. They expanded the description of this early work and reported the results of further experiments conducted to substantiate their conclusions in Ludgar Lallemand, Maurice Perrin, and J. L P. Duroy, *Du rôle de l'alcool et des anesthésiques dans l'organisme* (Paris: F. Chamerot, 1860).

[33] A German student, Rudolf Masing, developed this test in 1854 from the observation that dyers used alcohol to form the green oxide of chrome in manufacturing chrome alum. Masing found that bichromate of potash dissolved in sulphuric acid turned from red to emerald green when alcohol was added. He described the chromic acid test in *De mutationibus spiritus vini in corpus ingesti* (Dorpat, 1854), which I have not seen. See "Review: Alcohol," *Brit Foreign Med. Chir Rev.*, 1861, *28*: 92.

[34] Lallemand, "Rôle de l'alcool," pp. 181-183; Lallemand, Perrin and Duroy, *Rôle de l'alcool*, pp. 112-119

[35] A. Duchek, "Ueber das Verhalten des Alkohols in thierischen Organismus," *Vierteljahrschrift fur praktische Heilkunde*, 1853, *3* 133.

On the basis of these experiments, although wholly lacking any quantitative evidence, Lallemand, Perrin and Duroy concluded that alcohol was not an aliment, that it was not transformed in the living organism, and that the body eliminated all ingested alcohol intact through the lungs, skin and kidneys.[37] They acknowledged that to prove that not even a small fraction of ingested alcohol was transformed or retained in the organism it would be necessary to show that the quantity of alcohol eliminated equalled the quantity taken in, but dismissed this objection to their conclusions by stating merely that "it is not always possible to offer this species of proof in physiology."[38] Lallemand and his colleagues plainly recognized the dominance of Liebig's views of the physiological action of alcohol and expressed their hesitation in attacking "this brilliant theory, consecrated by the genius of eminent men who have brought about its acceptance in the scientific world";[39] they were fully cognizant of the iconoclastic step they were taking in putting forward a total elimination theory.

At about the same time, Edward Smith, a London physician who was particularly interested in physiological chemistry and dietetics, was conducting a series of experiments on the actions of foods on respiration. He reported his results before the Royal Society of London in 1859.[40] Smith and a colleague had tested on themselves the effects of spirits of wine, brandy, whiskey, gin, rum, sherry, port, stout, and ale in addition to other foods. They noted the effects of their ingestion on carbonic acid and vapor exhalation, the quantity of air inhaled, and the rates of pulsation and respiration.[41] Smith suggested that the fumes of untransformed alcohol on the breath of the drinker indicated clearly that alcohol was excreted from the body unchanged, claiming that Liebig's assertion that alcohol was transformed in the body to carbonic acid and water, generating heat, was based "on chemical theoretical grounds" alone and had greatly hindered the progress of research on the physiological action of alcohol.[42] Smith based his initial judgment on very little substantive evidence, but after Lallemand, Perrin and Duroy published the results of their work, Smith repeated their experiments with entirely confirmatory results. Smith concluded that alcohol was not transformed in the body and that Todd's theory of its action was untenable.[43]

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[36] Lallemand, "Rôle de l'alcool," pp. 179-180; Lallemand, Perrin and Duroy, *Rôle de l'alcool, pp.* 85-112.

[37] Lallemand, "Rôle de l'alcool," p. 183.

[38] *Ibid.*

[39] Lallemand, Perrin and Duroy, *Rôle de l'alcool,* pp. viii-ix.

[40] Edward Smith, "Experimental inquiries into the chemical and other phenomena of respiration," *Trans. Roy. Soc. Lond.*, 1859, *149*: 681-714, and *idem,* "Experiments on respiration—Second communication. On the actions of foods upon the respiration during the primary process of digestion," *Trans. Roy. Soc. Lond.*, 1859, *149*: 715-742. On Smith's physiological researches, see T. C. Barker, D. J. Oddy, and John Yudkin, *The Dietary Surveys of Dr. Edward Smith. A New Assessment* ([London]: Staples Press, [c 1970]), and Carleton B. Chapman, "Edward Smith (?1818-1874): physiologist, human ecologist, reformer," *J. Hist. Med.*, 1967, *22*: 1-26.

[41] Smith, "Experiments on respiration," p. 718.

This was not the first research on this topic. In fact, several observers had noted before the late 1850s that very small portions of ingested alcohol could pass through the organism unaltered.[44] What was new was the conclusion of Smith, Lallemand, Perrin and Duroy that the body eliminated *all* ingested alcohol intact. The enormous attention their experiments and conclusions received in British medical circles must be attributed more to the visibility and importance accorded to the question of alcohol therapy in the early 1860s than to either the conclusiveness of their evidence or the intrinsic scientific merit of their researches. The Lallemand-Smith total elimination theory emerged in an environment in which physicians perceived these physiological researches to be critically important in their implications for socio-medical concerns; this experimental evidence and its interpretation was to become a pivotal point in the ensuing debate on the alcohol question.

Within a year after Lallemand and Smith announced the results of their experiments, the consensus of the British medical profession was that alcohol was not transformed in the living body and that it was excreted unchanged.[45] "It is clear that we must cease to regard alcohol as in any sense an aliment," summed up one medical editor, "inasmuch as it goes out as it went in, and does not, so far as we know, leave any of its substance behind it."[46] Lallemand and Smith had provided only very incomplete qualitative support for their conclusion, but "such as it was," one London physician later reflected, "the profession in this country for the most part accepted this conclusion entire, without a moment's hesitation."[47] The doctrines of Liebig and Todd on the physiological action of alcohol were no longer tenable.

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[42] Smith, "On the actions of alcohol," *Trans. Nat Assoc. Promot. Soc. Sci.*, 1860, 551-552.

[43] Edward Smith, "On the mode of action of alcohol in the treatment of disease," *Lancet*, 1861, *2:* 134

[44] Mauvaud reviewed these earlier observations in "De l'action physiologique et thérapeutique de l'alcool," *Mém et Bull. Soc. de Méd. de Bordeaux*, 1869, 454. See also Carpenter, *Alcoholic Liquors*, p. 38, and Percy, *Experimental Inquiry*, p. 22.

[45] See, for example, "Alcohol: its actions and uses," *Pharm. J and Trans* , 1860, s. 2, *2*. 570-571, W. T. Gairdner, "On the use of alcoholic stimulants in hospital practice, with illustrations from the records of the Royal Infirmary of Edinburgh," *Edinburgh Med. J.*, 1861, *6*, 961-968; T. Inman, "Is alcohol food?" *Brit. Med. J.*, 1862, *2:* 351-353; Metcalfe Johnson, "The alcohol question," *Lancet*, 1861, *2*· 168-169; and R. Liveing, "The physiological and therapeutical action of alcohol," *Med Times and Gazette*, 1861, *2:* 21

[46] "Review: Alcohol," p. 94.

But the meaning of this shift for therapeutic practice was not at all obvious. Physicians had several options. On the one hand, they could accept the Lallemand-Smith total elimination theory, reject Toddistic theory and practice, and banish alcohol from their armamentarium. Few physicians chose this course. On the other hand, they could retain alcohol in their practice, reconciling its use with their theoretical beliefs in one of two ways. If they accepted Lallemand's conclusions, as most medical men did, then they were forced to construct new theoretical models to explain the beneficial actions of alcohol in treating disease. They could, however, reject Lallemand's work as inconclusive or erroneous, retaining instead Todd's theory and the practice it dictated. Those physicians who took this course were forced to seek new experimental evidence to disprove the Lallemand-Smith total elimination theory. Finally, a scattering of clinicians accepted both Lallemand's conclusions and Todd's theory, plainly not comprehending the full implications of either.[48]

A few physicians claimed that the physiological enlightenment that Lallemand had provided called for the wholesale banishment of alcohol from medical practice. Their opposition to alcohol therapy frequently was animated by a commitment to the social and moral concerns of the temperance movement. The temperance spokesman Frederick Lees asserted that the work of Lallemand and Smith "gave the coup de grâce to that baseless theory of Liebig," proving that "intoxicating drink is neither food nor physic."[49] John Higginbottom, a practicing physician and temperance movement activist, announced in 1862 that this new conception of alcohol's physiological action had led him to the discovery of "the non-alcoholic treatment of disease."[50] But generally, only teetotal physicians denied alcohol any role in therapeutic practice.

Most physicians accepted the Lallemand-Smith total elimination theory but retained alcohol as a therapeutic agent, drawing on the idea that alcohol was an unassimilable stimulant for support of their practice.[51] For Todd and the advocates of his theory, alcohol stimulated because it was a nutriment possessing a particular affinity for nervous tissue; for the adherents of the new school, alcohol, though not a food, stimulated the nervous system and supported the vital power. Even Lallemand recognized that alcohol was a stimulant of therapeutic value, and Smith suggested that "if alcohol does pass off from the body unchanged, it is not the less a powerful and valuable medicinal agent. It has physical as well as chemical properties."[52] Just how alcohol stimulated the nervous system was not clear, but the new theoretical explanation provided appealing and widely accepted grounds for the continuing therapeutic use of alcohol. Alcohol supported the patient's body not by nourishing the system but by somehow stimulating the vital force.

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[47] Anstie, "On indiscriminate stimulation," p 36

[48] See, for example, E Lankester, *On Food· Being Lectures Delivered at the South Kensington Museum* (London: Robert Hardwicke, 1862), cf pp 191 and 208

[49] Frederick Richard Lees, *An Inquiry into the Reasons and Results of the Prescription of Intoxicating Liquors in the Practice of Medicine* (London Trubners, 1866), pp. v, 86.

[50] John Higginbottom, "On the non-alcoholic treatment of disease," *Brit. Med. J.*, 1862, 2 278

Certain other medical men explained alcohol's therapeutic value on the basis of their own idiosyncratic theoretical doctrines. Lionel Smith Beale, who had served as Todd's clinical clerk and succeeded him in the chair of physiology at King's College, interpreted the therapeutic action of alcohol within the framework defined by his own particular conception of elemental organic organization. Beale believed that the cell or "elementary part" was composed of a core of germinal or living matter that tended to a rapid and unrestricted rate of growth; the outer portion of the normal cell, however, was composed of dead or "formed" material, which controlled the access of the germinal matter to nutriment and thereby restrained its growth. In disease, morbid germinal matter gained free access to nutriment, growing uncontrollably, causing capillary congestion and inflammation.[53] Beale's use of alcohol in treating acute disease derived theoretical legitimation from the idea that alcohol prevented the rapid growth of living germinal matter, killing by coagulation the morbid germinal matter that was not surrounded by a normal outer layer of formed material and thereby terminating the inflammatory process. Beale continued to put Todd's clinical directives into practice while at the same time denying that alcohol was in any sense a stimulant.[54]

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[51] See, for example, William T. Gairdner, *Clinical Medicine, Observations Recorded at the Bedside with Commentaries* (Edinburgh Edmonston and Douglas, 1862), p. 64, and *idem,* "Alcohol stimulants," pp. 965-966. Francis E Anstie discussed contemporary views of the actions of stimulants in *Stimulants and Narcotics, Their Mutual Relations With Special Researches on the Action of Alcohol, Aether, and Chloroform on the Vital Organism* (London· Macmillan, 1862), pp. 22-162.

[52] "Lallemand, Perrin, and Duroy on alcohol," *Brit Med. J.,* 1862, *1:* 153

[53] The clearest statement of Beale's theory of elemental organic organization is Lionel Smith Beale, "Lectures on the structure and growth of the tissues of the human body," *Archives of Med.,* 1860-61, *2:* 207-276, and 1861-62, *3:* 71-123. Gerald L. Geison discusses Beale's thought in "The protoplasmic theory of life and the vitalist-mechanist debate," *Isis,* 1969, *60* 285-290 For Beale's model of pathogenesis, see Lionel Smith Beale, "Bioplasm and its degradation; with observations on the origins of contagious disease," *Quarterly J Microscopical Sci ,* 1870, *10·* 209-229; *idem, Microscopical Researches on the Cattle Plague. Appendix A to the Third Report of the Commissioners Appointed to Inquire into the Origin and Nature, &c of the Cattle Plague,* House of Commons, 1866, *22,* Reports of Commissioners, 6, and *idem,* "On the real nature of disease germs," *Monthly Microscopical J.,* 1878, *4:* 193-205

Other physicians and physiologists in England, France and Germany claimed that Lallemand's conclusions were not warranted by his evidence. These men turned to the laboratory for new experimental evidence that would invalidate the Lallemand-Smith total elimination theory. In this way, they sought to reinstate the physiological views held by Liebig, Carpenter and most other members of the medical and scientific communities before 1860 and vindicate Todd's theory of alcohol's therapeutic action.

Edmund Baudot, a French clinician, supported his contention that alcohol was destroyed in the organism by twenty-three experiments in which he collected his own urine after ingesting alcohol, determining with physical tests that it contained little or no alcohol. He also asserted that the chromic acid test, which Lallemand and Smith had employed, was too sensitive to indicate anything more than the presence of a minute amount of alcohol.[55] "It is clear that alcohol is broken down in the organism," Baudot concluded, "and that it fills the role of a respiratory aliment which Liebig assigned to it."[56] Similarly, Hugo Schulinus, a student at the pharmacological laboratory in Dorpat, designed a set of experiments in 1865 to test quantitatively the conclusions Lallemand had drawn from his qualitative researches. Schulinus concluded that alcohol was almost completely oxidized in the living organism, and the total elimination theory therefore was untenable.[57] A London Toddite asserted in the following year that Schulinus' experimental evidence had "finally dismissed the total elimination theory."[58]

The physiological chemist and physician J. L. W. Thudichum provided the clearest refutation in England of the total elimination theory. In the early 1860s Thudichum had become interested in the debate over whether alcohol was transformed in the body or eliminated unchanged, noting that before Lallemand's researches, "while hundreds of men talked about it, none ever dreamed of setting to work to ascertain the solution of the question." He resolved to "go to the root of a certain question which has for a long time agitated the learned, and particularly physicians. . . : Is alcohol food or physic?"[59] In 1865 he gave forty-four bottles of wine to thirty-three men, collected their urine, subjected it to twenty-four distillations, dehydrated the distillate with copper sulphate, and compared the weight of the product with the weight of the absolute alcohol contained in the ingested wine. This experiment, he concluded, provided direct proof that only a quarter of one percent of the ingested alcohol was eliminated in the urine.[60]

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[54] Lionel Smith Beale, *On Deficiency of Vital Power in Disease, and of Support, With Observations upon the Action of Alcohol in Serious Cases of Acute Diseases* (London. T. Richards, 1863), pp. 19-21. At least a few British physicians enthusiastically supported Beale's theory. See Anstie, "Remarks on certain recent papers on the action of alcohol," *Practitioner*, 1873, *11*. 365-366, and J. Ross, "On the action of alcohol," *Brit. Med. J*, 1873, *2*, 395-397.

[55] Edmond Baudot, "De l'alcool;—de sa destruction dans l'organisme," *Union méd.*, 1863, *135* 390-391.

[56] *Ibid.*, p. 393.

[57] Hugo Schulinus, "Mittheilungen aus den pharmacologischen Laboratorium in Dorpat," *Archiv fur Heilkunde*, 1866, 128.

[58] Francis E Anstie, "The physiological action of alcohol," *Lancet*, 1867, *2*: 595.

Encouraged by his results, Thudichum collaborated with the chemist August Dupré in a series of further experiments to disprove conclusively the total elimination theory. In their first experiments Thudichum and Dupré assessed the amount of alcohol in the distillate of urine samples by determining their specific gravity and by testing the samples in a Geissler's vaporimeter. They recognized, however, the need for a new method of quantitatively evaluating the alcohol content of urine with precision, and Dupré developed such a method.[61] Thudichum and Dupré applied this method in a series of experiments to determine the amounts of alcohol excreted in the urine of healthy men following ingestion of wine or brandy. Dupré also performed analogous tests on typhus patients in the Westminister Hospital who were being treated according to Todd's method. Their results led to the conclusion that all but a minute fraction of ingested alcohol was transformed in the organism and that the Lallemand-Smith total elimination theory plainly was untenable.[62]

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[59] Thudichum, "Researches intended to promote an improved chemical identification of diseases," *Report of the Medical Officer of the Privy Council*, 1867, *10* 188. "Dr. Thudichum's book," remarked the English physiologist Benjamin Ward Richardson, "is such a model of industry, such a master-book in chemical physiology, that I would it were in the hands of every practitioner in the Kingdom, and assuredly the part which refers to alcohol is deserving of special regard." ("Lectures on experimental and practical medicine: Physiological researches on alcohols," *Med. Times and Gazette*, 1889, *2*. 703-706) For an appraisal of Thudichum's career, see David L. Drabkin, *Thudichum Chemist of the Brain* (Philadelphia. University of Pennsylvania Press, 1958).

[60] Thudichum, "Researches," p. 188.

[61] *Ibid*, pp. 289-291. In this test, Dupré first oxidized the alcohol contained in the distillate to acetic acid by boiling it in an air-tight container with potassium dichromate and sulphuric acid He then determined the acidity of the distillate by titrating it against a standard caustic soda solution, ascertaining the amount of acetic acid—and thereby alcohol—contained in the sample.

Not all physiological research, however, supported the idea that alcohol elimination was negligible. Edmund A. Parkes, professor of hygiene at the British Army Medical School, and Cyprian Wollowicz, assistant surgeon of the Army Medical Staff, collected a very detailed set of observations on the dietetic effects of alcohol in the food of a healthy soldier over a period of twenty-six days, paying particular attention to variations of pulse, nitrogen excretion, and temperature. The chromic acid test showed that alcohol was eliminated by the lungs, kidneys and skin over a period of several days after taking alcohol. This indicated that although the elimination of alcohol within a few hours after ingestion might be small, the cumulative elimination over a period of days might indeed be substantial.[63] Parkes and Wollowicz made only qualitative observations of alcohol elimination, but concluded in 1869 that their experiments, "as far as they go, confirm the results arrived at by Perrin and Lallemand, Edward Smith, and others."[64]

Victor Subbotin, a physiologist working in Germany, provided quantitative evidence to support these views. Subbotin injected alcohol into the esophagus of a rabbit and placed the animal under the bell-jar of an apparatus designed on the model of a larger Pettenkofer's chamber. Subbotin passed air out of the chamber through a tube, collected the condensate, converted the collected alcohol to acetic acid, and determined quantitatively the amount of alcohol eliminated from the rabbit's body. In this and similar experiments he found that up to 24.4 percent of the injected alcohol was eliminated unchanged within a twenty-four hour period. From this, Subbotin concluded that the total elimination theory might be correct, adding that alcohol was "neither a food nor a nutriment in the ordinary sense of the words."[65]

Dupré and the London physician Francis Anstie, the most vocal defender of the scientific integrity of Toddism and author of numerous polemical editorials attacking supporters of the total elimination theory, sharply criticized Subbotin's methods and conclusions.[66] "Unless the eliminationists can show the probability of an elimination, not of 16 but of 100 per cent of the ingested alcohol," charged Anstie, "they have not helped their cause in the least."[67] Dupré conducted new experiments in which he measured alcohol elimination each day with the continuance of an alcohol diet. Finding that daily elimination did not increase, he concluded that most ingested alcohol must be destroyed in the system.[68] In 1874, reviewing the discussion on the question of total elimination since 1860 and concluding that the evidence favored the idea that alcohol was transformed in the body, Anstie proclaimed the debate to be at an end. "It is certainly rather hard," he reflected,

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[62] *Ibid.*, pp. 291-294.

[63] E. A. Parkes and Cyprian Wollowicz, "Experiments on the effect of alcohol (ethyl alcohol) on the human body," *Proc. Roy. Soc. Lond.*, 1869-70, *18*: 389.

[64] *Ibid.*, p. 387.

[65] Victor Subbotin, "Ueber die physiologische Bedeutung des Alkohols für den thierischen Organismus," *Zeit. für Biologie*, 1871, *7*: 378.

[66] [Francis Anstie], "The new alcohol research of M. Subbotin," *Practitioner*, 1872, *8*: 365, A. Dupré, "The physiological action of alcohol: an answer to Dr. Subbotin," *Practitioner*, 1872, *9*: 28-34.

> that the very inadequate researches of Lallemand, Duroy, and Perrin should have been allowed so long to mislead the majority of the profession and of the public upon the subject of the elimination of alcohol, being, as they were, mere qualitative experiments, and, even as such, devised and carried out with such an absence of all reasonable precaution against fallacy as should have set physiologists on their guard at once. As it is, it has cost some fourteen years of almost unintermittent work to explode the errors which the French observers made current respecting a merely preliminary investigation into the action of alcohol.[69]

In fact, most physiologists and medical men had rejected the total elimination theory by the early 1870s. Alcohol, they believed, was mostly transformed in the system and partially eliminated unchanged.[70]

Although the question of alcohol's elimination or transformation was no longer a serious problem, it was also no longer the issue. Physicians' principal concerns in the "alcoholic therapeutics" debate changed markedly at the end of the 1860s, reflecting the emergence of new criteria for determining which questions about alcohol's physiological action were most relevant medically. At the same time that medical men were considering the relative merits of Lallemand's or Liebig's claims about alcohol's nutritional role, new evidence came to the fore that fundamentally changed the configuration of the debate on alcohol's physiological action. The question no longer was how alcohol stimulated or nourished the organism, but rather how alcohol changed the body's temperature.

Physiological research conducted in the late 1860s purported to show

[67] [Anstie], "New alcohol research," p. 365.

[68] A. Dupré, "On the elimination of alcohol," *Practitioner*, 1874, *8* 154.

[69] See, for example, "Review of E. A. Parkes and Cyprian Wollowicz, Experiments on the effects of alcohol (ethyl-alcohol) on the human body," *Practitioner*, 1870, *5*· 103, "Review of John Bell, Report of the Committee on the Relations of Alcohol to Medicine," *Practitioner*, 1870, *5*· 35; and Richardson, "Lectures," p. 705.

[70] Francis Anstie, "Final experiments on the elimination of alcohol from the body," *Practitioner*, 1874, *13*. 26.

that, contrary to current scientific, medical and popular opinion, alcohol lowered rather than elevated the body's temperature. This line of investigation received an impetus from three developments. First, a systematic use of medical thermometry, culminating in C. A. Wunderlich's studies of fever, led to a preoccupation with the destructive effects of heat in the febrile patient and a search for means of therapeutically lowering temperature.[71] Second, the ascendancy of physiologism or experimental pharmacology—grounded on the belief that new therapeutic methods could be discovered by studying the actions of drugs in healthy subjects—led to systematic testing of the physiological effects of chemical agents.[72] Finally, the prevailing medical interest in the physiological and therapeutic actions of alcohol identified it as a particularly interesting and important material for careful study. The observation that ingested alcohol lowered the body's temperature gave rise to the belief that alcohol could therapeutically reduce the temperature of febrile patients, that is, that alcohol was an effective antipyretic. Supported by this new conception of its physiological action, alcohol became even more popular as therapy and its use did not diminish until the end of the nineteenth century.[73]

The suggestion that alcohol lowered the body's temperature was not entirely new in the 1860s,[74] but the clinical investigations in 1866 of Sydney Ringer, professor of materia medica at University College, London, and Walter Richards were the first studies on alcohol's antipyretic effect to attract considerable attention in Britain. Ringer and Richards found that large doses of alcohol given to febrile patients, and to patients suffering from acute diseases, depressed bodily temperature.[75] This research, one medical editor claimed, "simply annihilated three-fourths of the declamatory reasoning which has been expounded by some of the more unreserved opponents of the alcoholic treatment of acute pyrexia."[76]

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[71] C. A. Wunderlich and Edward Seguin, *Medical Thermometry and Human Temperature* (New York: William Wood, 1871). On the rise of medical thermometry, see Lord Brock, "The development of clinical thermometry," *Guy's Hospital Rep.*, 1972, *121*: 310-313; Kenneth D. Keele, "Clinical medicine in the 1860s," in F. N. L. Poynter, ed., *Medicine and Science in the 1860s* (London: Wellcome Institute of the History of Medicine, 1968), p. 4; Stanley Joel Reiser, *Medicine and the Reign of Technology* (Cambridge: Cambridge University Press, 1978), pp. 111-121; and P. van der Star, "The history of thermometry in medicine," *Bibliotheca Radiologica*, 1969, *5*: 6.

[72] Erwin H. Ackerknecht, *Therapeutics from the Primitives to the 20th Century* (New York: Hafner Press, 1973), pp. 110, 122-123.

[73] *Ibid.*, pp. 110, 122-124, 152. For a discussion of the vogue for antipyretic agents in the second half of the nineteenth century, see Silvio Rageth, *Die antipyretische Welle in der zweiten Halfte des 19. Jahrhunderts* (Zurich: Juris-Verlag, 1964).

[74] Earlier observations on alcohol's antipyretic effect in dogs, birds and humans are reviewed in Thomas Chambers, *Lectures, Chiefly Clinical* (London: John Churchill and Sons, 1865), p. 573, and Mauvaud, "Action de l'alcool," p. 369.

[75] Sydney Ringer and Walter Richards, "The influence of alcohol on the temperature of non-febrile and febrile persons," *Lancet*, 1866, *2*: 208-209.

Laboratory researches soon confirmed Ringer and Richard's clinical observations. In 1869 Carl Binz, and his student Cuny Bouvier, reported the results of their experiments on the influence of alcohol on the temperature of the body, which they had conducted at Binz's pharmacological laboratory at the University of Bonn.[77] A report from Emil DuBois Reymond's laboratory in Berlin had claimed that in experiments on dogs large doses of alcohol reduced bodily temperature.[78] To test this, Binz and Bouvier conducted a series of forty-nine experiments in which they gave varying doses of alcohol to men and dogs, finding that even small amounts of alcohol depressed the body's temperature. Binz, who did not subscribe to the total elimination theory, maintained that although the combustion of alcohol augmented heat production, alcohol checked the oxidation of tissue and other foods; the net result, therefore, was a depression of temperature.[79] Alcohol given to a febrile patient thus lowered the body's temperature and prevented tissue wastage. Binz reflected that:

> the introduction of the thermometer into medical practice, to which only the unscientific will object, has taught us that high temperature in the febrile state constitutes one of the most dangerous symptoms in various diseases. Alcohol is thus frequently called upon to act as a preservative of life by its antipyretic properties.[80]

Binz cogently observed that "as a consequence of these investigations, the alcohol question may assume a somewhat different aspect."[81]

By the early 1870s alcohol's effect on temperature had usurped its role as aliment as the principal focus of medical interest. Medical opinion in Britain and on the Continent overwhelmingly favored the idea that alcohol diminished temperature. Certainly, some medical men still claimed that alcohol stimulated the nervous system and prevented tissue wastage; yet most concerned physicians had come to ascribe alcohol's principal beneficial effect in the febrile patient to its action as an antipyretic.[82] The theoretical reasons that physicians prescribed alcohol for patients with acute diseases had changed markedly between the 1850s and 1870s, but Todd's practice, Anstie claimed, had been fully vindicated by the judgment of experimental science.[83]

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[76] Francis E. Anstie, "Lectures on the progress and treatment of certain acute diseases with special reference to the indications afforded by the graphic study of pulse," *Lancet*, 1867, *2* 189

[77] Cuny Bouvier, "Untersuchungen über die Wirkung des Alkohol auf die Korpertemperatur," *Archiv fur die gesamte Physiologie des Menschen und die Thiere*, 1869, *2* · 370-391; C. Binz, "On the influence of alcohol upon the temperature of the body," *Practitioner*, 1869, *3* 137-147.

[78] J. Tscheschichin, "Zur Lehre von den thierischen Warme," *Archiv für Anatomie und Physiologie und Wissenschaft. Med*., 1866, 151-179.

[79] Binz, "Influence of alcohol," pp 138-145.

[80] *Ibid.*, p. 142

[81] *Ibid.*

Within the span of a single decade three distinct theories in succession dominated explanations of alcohol's therapeutic action. In the late 1850s Todd's belief that alcohol was a respiratory aliment and an assimilable nervous stimulant predominated. After the emergence of the Lallemand-Smith total elimination theory in 1859, practitioners generally abandoned Todd's theory and shifted their allegiance to the idea that alcohol was an unassimilable stimulant, while a few physicians turned to the laboratory for new experimental evidence that would salvage Todd's theory. The evidence this latter group mustered did invalidate the total elimination theory, vindicating Todd's beliefs, before the end of the decade. Finally, when laboratory and clinical evidence showed in the late 1860s that alcohol lowered bodily temperature, physicians embraced the notion that alcohol benefited the febrile patient principally because it was an antipyretic.

In the face of changes in physiological knowledge, this striking mutability of medical theory contrasted sharply with the resilience of medical practice. The alcohol therapy debate of the 1860s had very little impact on medical practice: alcohol remained a fashionable and widely prescribed therapeutic agent through the end of the nineteenth century.[84] To be sure, the more extreme excesses of Toddistic practice were moderated after Todd's death,[85] yet this therapeutic temperance clearly was not the result of scientific or theoretical arguments. That discourse on the physiological action of alcohol failed to suppress its use in treating disease becomes even more evident when it is recognized that Todd's practice became common in France only in the mid-1860s. The Paris clinician Louis Jules Béhier, the principal advocate of the "potion de Todd"—that is, brandy and water[86]—claimed that objections to Todd's theory of the action of alcohol on the living organism simply made no difference to the practicing clinician; theory was "purely a question of interpretation that changes absolutely nothing in practice."[87] Observation at the bedside had led physicians to believe that alcohol was a valuable therapeutic agent, and in questions of practice, the priority of clinical experience over the dictates of experimental science was plain. The relationships among scientific knowledge, medical theory and therapeutic practice that emerged from the "alcoholic therapeutics" debate illustrate clearly how scientific knowledge could bring about marked shifts in therapeutic theories without significantly altering therapeutic practice.

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[82] See, for example, "The action of alcohol," *Brit. Med J.*, 1874, *1*: 458, Alfred Carpenter, "An address on alcoholic drinks: as diet, as medicines, and as poisons," *Brit. Med J.*, 1878, *1*: 699-704; James Edmunds, *The Medicinal Use of Alcohol, and Stimulants for Women* (New York: National Temperance Society and Publishing House, 1874), pp. 81-84; Mauvaud, "Action de l'alcool," p. 469, and Rabuteau, "Contributions à l'étude des effets physiologiques et thérapeutiques de l'alcool," *Comt rend Soc. de Biol*, 1871, s. 5, *2*: 125

[83] Anstie, "Remarks," p. 423.

[84] For example, one physician remarked as late as 1923 that "there are few medical men today who would not agree that it [alcohol] is a most valuable drug and one which we could ill do without." Physicians prescribed brandy, whiskey and wine for patients with chronic wasting or febrile diseases in the belief "that alcohol is a real food in the physiological sense, and that it undergoes complete combustion in the body with the liberation of energy in proportion of seven calories per gram. In addition to this it shields the proteins and fats of the body to some extent from oxidation." In prolonged fevers, "the administration of alcohol checks tissue waste and helps supply energy to the body." (Robert Hutchinson, "Alcohol as a medicine," in Ernest H. Starling, ed., *The Action of Alcohol on Man* [London. Longmans, Green, 1923], p. 177).

The prominence of physiological arguments in the debate on the alcohol question shows plainly that British physicians in the 1860s perceived in science something of value for medicine. From their allegiance to science physicians derived a guide to the construction of their medical theories and a source of authority for their clinical practices. Physiological knowledge could help the physician understand and justify his therapeutic practices, greatly reinforcing his clinical confidence; but changes in these practices stemmed from clinical observation and experience. Medical men looked to science to explain and legitimize—but not to test—therapeutic practice. Science, therefore, played an important role in the construction of medical theory, but was largely irrelevant in the formulation of therapeutic practice.

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[85] "Alcoholic stimulants in disease," *Lancet*, 1867, *1*: 606; J. W Eastwood, "A note on the use of alcohol in health and disease," *Brit Med J.*, 1871, *2*: 755, and 1872, *2*: 266-268, T. P. Heslop, *The Abuse of Alcohol in the Treatment of Acute Diseases. A Review* (London: J and A Churchill, 1872), p iii.

[86] J. Béhier, "Note sur l'emploi interne de l'alcool à hautes doses dans les phlegmasies et dans les maladies fébriles," *Bull. gén de thérapeutique*, 1865, 150-154; "Review of Béhier, On the internal use of alcohol in large doses in inflammatory and febrile diseases," *Brit Foreign Med. Chir. Rev.*, 1868, *41*: 525

[87] J. Béhier, *Conférences de clinique médicale faites à La Pitié* (Paris: P. Asselin, 1864), p. 365.

BLACK ABOLITIONIST DOCTORS AND HEALERS, 1810-1885*

LESLIE A. FALK

Black community health history must include knowledge of black health care providers, their social roles and the health of the community. This paper deals with some medical and community aspects of the lives and careers of a few antebellum "index" black doctors and healers, including the nature of their training and health care practices. It chooses those who were abolitionists as this serves as an indicator of intellectual and social consciousness, along with other social activity in the black community. Demographic and socio-economic data are considered for a few black communities. Our viewpoint has not been chosen by other scholars, but there are clear starting references in the Negro or black history literature and an occasional one in the "regular" medical history literature.[1]

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* An introduction to the work reported here was presented at the 47th annual meeting of the American Association for the History of Medicine, Charleston, S.C., May 3, 1974 by Leslie A. Falk, with Sylvester Walker, then Research Assistant. Later work was done in collaboration with Mr. Sam Cameron, Ms. Gloria Leath, Ms. Lois Griffin and Barbara Womack. It was supported during 1974-75 by the National Institute of Mental Health Minority Group Studies Project, Grant number LM 02652-01, for which Dr. Falk was Principal Investigator. Support has also been provided from a Robert Wood Johnson Foundation grant to Meharry Medical College. The studies of the Project focussed on North America and the Caribbean. Two earlier papers in this series were: Leslie A. Falk, "The Negro American's health," *Medical Care*, 1966, *4*· 171-75, and Leslie A. Falk and Nii Addo Quaynor-Malm, "Early Afro-American Education in the United States: The Origins of Meharry Medical College in the 19th Century," in *Proceedings 23rd International Congress of the History of Medicine*, 2 vols (London: Wellcome Institute of the History of Medicine, 1974), 1: 346-356.

[1] The *Journal of the National Medical Association* is a basic source. Dr. W Montague Cobb's short biographical sketches have been frequent over the last three decades. They include some of the antebellum doctors. An additional short review article by Cobb is "The black physician in America," *New Physician*, 1970, *19:* 912-916. A valuable book is Herbert Morais, *The History of the Negro in Medicine*, (Washington, D.C.: International Library of Negro Life and History, Association for the Study of Negro Life and History, 1967). The bibliography is curiously organized but extensive Illustrations are profuse. Two collections of readings have been valuable: H. Aptheker, *A Documentary History of the Negro People in the U.S.* (New York: Citadel Press, 1951) and P S Foner, *The Voice of Black America* (New York: Simon and Schuster, 1972). Dorothy B. Porter, *The Negro in the U S.. A Working Bibliography* (New York: University Microfilms, 1969) is useful, as is G. Leath et al., "Black Medical History Bibliography" (Nashville: Meharry Medical College), Unpublished MS. Benjamin Quarles, *Black Abolitionists* (New York: Macmillan, 1969) gave the clue that a known group of 19th-century black physicians and healers in the United States were active abolitionists. John A. Kenny, *The Negro in Medicine* (Tus-

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Since all U.S. blacks—slave and free—had serious problems of access to education, there was a continuum of training—the folk healer, the self-made practitioner, the nurse-midwife, the bleeder-cupper, the dentist, the barber, the apprenticeship-trained, and finally the medical school graduate doctor. As it became illegal in many slave states for blacks to practice medicine, the individuals whose names we know tend to be free blacks, either by birth or by escape. We have chosen a few outstanding individuals to characterize some aspects of the subject, and will concentrate on Doctors James McCune Smith, David Ruggles, William Wells Brown, Sarah Parker Remond, and Harriet Tubman. Dr. Martin Delany will be reported on separately.

The total universe of free blacks in any health-related occupation in the period 1810-1875 is not fully known. We are not here reporting data on this from census directories and other sources for Nashville, Pittsburgh, Philadelphia, Cincinnati and New York which we have. Suffice it to say that words such as physician, dentist, nurse, and pharmacist appear in these sources, as well as bleeder, cupper, barber, barber-dentist, leech and apothecary. This paper will focus on exemplar individuals, not on numbers practising.

James McCune Smith, M.D., (1811-1865), is considered the first black in the U.S. to obtain a medical degree, but it was not from a U.S. medical school.[2] He had to go to Glasgow, in Scotland, where he received the M.D. in 1837. He was born in 1811 in New York City, the son perhaps of a black former bondwoman and a white father, but probably of a black freedman, Samuel, who was a merchant.[3] While attending the New African Free School on Mulberry Street, established in 1787 by the New York Manumission Society, Smith's precocity led to his being chosen to give the welcoming address in 1824 when General Lafayette's belief in educational opportunity for Negro youth led to his visiting the school. Begin-

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kegee, 1912) is a source for all later 20th-century authors. Some of it deals with the period of 1810-1885. An early article is Kelly Miller, "Historical background of the Negro physician", *J Negro Hist.*, 1916, *1* 99-109. C. G Woodson, *The Negro Professional Man and the Community* (Washington Association for the Study of Negro Life and History, 1934) is a broad source, as is H E. Farmer, "An account of the earliest colored gentlemen in medical science in the U.S.," *Bull. Hist. Med.*, 1940, *8*: 599-618.

[2] "Medical History" article on James McCune Smith, unsigned but known to be by Montague Cobb, Editor, *J. Nat Med. Assoc* , 1952, *44*: 1960 It ends with "his life and works still await competent historical study."

[3] Wesley Cartwright, "Life of James McCune Smith," in *Negroes of New York, Biographical Sketches, Writer's Program* a fragment on microfilm in the Schomburg Collection, 135th Street, Harlem Branch, New York Public Library. We have not yet located the full 9 pp. of the typescript. See also *MD* magazine, history section, "Afro American," April, 1963, 202

ning in 1837, Smith developed a large medical practice and operated two "first class" apothecary shops. He was appointed a physician to the Colored Orphan Asylum of New York and became its only black Board Member. This led to an "Original Communication" in the *Annalist* entitled "Lay Puffery of Homeopathy."[4] The article examined the statistical claims to superiority in mortality rates at the Protestant Half-Orphan Asylum, made in an advertisement in the *New York Evening Post* by the New York Homeopathic Dispensary Association. Smith reviewed the asylum's records and concluded that the statistics were contrived due to:

> A custom of quietly thrusting away the very sick children, in order that they may die elsewhere . . . at least such will be a natural impression until the two-hundred and odd children, sent away without record, are more satisfactorily accounted for.[5]

This is the first "Letter to the Editor" of a medical journal by a black doctor. Smith ended with a bitter statement: "May the regular practitioner of medicine battle against the most deadly quackery that curses the nineteenth century, in the form of Homeopathy."[6]

Smith's understanding of statistics was put to good use in 1844. He was the author of a "Memorial to the U.S. Senate," which Negroes in the vicinity of New York approved at a mass meeting.[7] This refuted the racist use made by John C. Calhoun, then Secretary of State, of the fraudulent U.S. Census of 1840, which was based on the analysis of Dr. Edward Jarvis. This fraud was reviewed by the now deceased Albert Deutsch some years ago in the *Bulletin of the History of Medicine*[8] and more recently by Gerald Grob.[9] In 1846, Smith's scientific pamphlet "The Influence of Climate on Longevity with Special Reference to Life Insurance" also refuted Calhoun's "unfavorable disquisition on the Negro."[10] By 1852, Smith's professional stature is indicated by his membership in the New York Statistic Institute and his appointment to a committee of five to draft its constitution.

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[4] *The Annalist*, 1847-48, *1*· 348-351. We thank Dr James Cassedy for our xerox of this letter

[5] *Ibid.*, p. 350.

[6] *Ibid*, p. 351.

[7] "Facts Concerning Free Negroes, 1844" in Aptheker, *Documentary History*, pp. 238-243 This includes Aptheker's short comments on the context, the capture of the slave ship Creole, p. 219

[8] Albert Deutsch, "The first U.S census of the insane (1840) and its use as pro-slavery propaganda," *Bull Hist Med.*, 1944, *15* 469-482.

[9] Gerald Grob, "Edward Jarvis and the Federal Census," *Bull. Hist Med*, 1976, *50*· 4-27.

[10] A. A Schomburg, "Negroes distinguished in science," *Negro Hist. Bull*, 1936, 2. 68. See also *Idem*, "Dr. James McCune Smith," *Negro Hist Bull.*, 1945, *11*: 41-42

Smith's stature as an abolitionist was also high. He wrote the introduction to Frederick Douglass' autobiography *My Bondage and My Freedom*. In 1853,

> the most representative of the pre-Civil War National Negro Conventions was held in Rochester, New York (and) the plan for a National Council of the Colored People (was) presented by Dr. James McCune Smith and amended and adopted by the delegates.[11]

This proposal was a wide-sweeping organizational document, with ideas such as establishing a "skills bank" recently re-discovered by the Urban League. Dr. Smith lived an active life concerning himself with civil rights, intellectual effort and medical practice. His last years were marred by the burning of his beloved colored orphan asylum by a racist draft riot in 1863. He died in Brooklyn in 1865.

Dr. David Ruggles (1810-1849), another notable black practitioner, experienced an adventurous life in New York City as one of the first U.S. black leaders in the Underground Railroad.[12] This led to his blindness, severe incapacitation, and poverty by 1840-42. After being sheltered in the Northampton (Mass.) Association of Education and Industry in 1842, he became a hydropathic practitioner. By 1843, he had fostered construction of a hydrotherapy sanatorium, which may have been the first building in the U.S. used exclusively for hydropathic purposes.[13] He became known as Dr. Ruggles and by the time of his premature death in 1849 had treated a large number of abolitionist, feminist, and reform leaders of his day.

Ruggles, in sharp contrast to James McCune Smith, was a patient first, and became a doctor primarily through self-training. He obtained some of his knowledge through Dr. Robert Swain of New York City and also through Dr. Robert Wesselhoeft, a practicing hydrotherapy physician in political exile from Germany, who had taken up residence first in Cambridge, Massachusetts and then in Brattleboro, Vermont.[14]

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[11] Aptheker, *Documentary History*, pp. 341-42

[12] The definitive biographer of Ruggles to date is Dorothy Porter, "David Ruggles, an apostle of human rights," *J Negro Hist*, 1943, *28:* 1, 23-50, *Idem*, "David Ruggles, 1810-1849; hydropathic practitioner," *J. Nat Med Assoc*, 1957, *49*· 130-134. Her research included extensive searches of the black history and hydrotherapy literature and the Northampton-New England sources. We have been able to add the obituary article, S Rogers, "Death of Dr. David Ruggles," *Water Cure J.*, 1850, 54; and Harry B. Weiss and Howard R. Kemble, *The Great American Water Cure Craze A History of Hydrotherapy in the United States* (Trenton, N J · Past Times Press, 1967), pp 130-134. See also Marshall Scott Logan, "Hydrotherapy in America: a nineteenth-century panacea," *Bull Hist Med*, 1971, *45*. 267-280. For the Northampton Association, an additional reference is John Humphrey Noyes, *History of American Socialism*, with a new introduction by Mark Holloway (New York. Dover Publications, 1966), pp 254-260.

[13] Porter, "Ruggles: hydropathic practitioner," pp 130-134, citation based on *The Liberator*, April 2, 1847. The Water-Cure Journal obituary, 1850, 54 however does not assign him this "first."

Ruggles was born of free parents in Norwich, Connecticut, the oldest of five children. His mother Nancy outlived him, being with him during his last days and returning with his body to their home for his burial. He attended the New England Free School, probably in Norwich.[15] At the age of seventeen, he made his way to New York and took up residence at 15 Chapel Street in Manhattan. That year, 1827, New York City had a black population of about 12,000, constituting some eight percent of the city's total population of about 166,000. Living and working conditions were very bad and the Negro total death rate was high (56.1 per 1,000).[16]

Ruggles was in the grocery business from 1829 to 1833. He was commended by the editor of *Rights of All,* an early Negro newspaper, because he refused to "sell spiritous liquors." Groceries were his livelihood, but he also became increasingly concerned about his race and entered into all kinds of civic activities. In 1833, Ruggles became a general traveling agent for the *Emancipator,* a New York anti-slavery newspaper. He was a most zealous agent in the job of obtaining subscriptions and collecting "arrearages." He wrote a series of articles for the paper explaining to Negroes their stake in its success and he addressed groups of Negroes and whites in various cities on objectives of the *Emancipator.*

In 1834, Ruggles opened a book store, which included a reading room for the public. He circulated and sold anti-slavery publications, as well as handling stationery, doing job printing, letter-press work, picture-framing, composition of letters, and binding books. That same year, he wrote and published a pamphlet in which he attacked slavery and argued against the colonization of the U.S. Negro.[17] His attack on the question is aimed directly at what David M. Reese, M.D., a white New Yorker, claimed. Reese held that slavery was legal under the U.S. Constitution and proposed foreign colonization of free U.S. blacks. Ruggles commented:

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[14] Rogers, "Death of Dr. Ruggles."

[15] Weiss and Kemble, *American Water Cure,* pp. 209-211; Joel Shew, "Editorial," *Water Cure J.,* 1845, *1* 15

[16] John Duffy, *A History of Public Health, New York City, 1625-1866* (New York: Russell Sage Foundation, 1968), p. 580.

[17] David Ruggles, *The 'Extinguisher' Extinguished* (New York: Published and sold by David Ruggles, 1834), p. 8.

> Dr. Reese commences his *Extinguisher* by stating that he is going at once to the fountain head of the Anti-Slavery Society, that he is going to be very fair—to treat that society according to the principles of their constitution and to judge of these principles from their report and to censure no man except when sustained in that publication. This is very nice and fair . . . but he considers slavery no crime or sin, from the fact that it is provided for by the Constitution. What does he say? Why he censures abolitionists for saying that slave holding is a heinous crime or sin in the sight of God.[18]

In the same spirit of splendid indignation and with polemical skill, Ruggles also urged the reader to have a clear conception of the cruelty to which his race was subjected by slavery, for example:

> If Dr. Reese was subject to the following treatment, which is common in the United States, would he maintain that the slaves are "treated with less severity in the U.S. than under the government of Rome?" Would he or any friend of the colonization scheme pronounce slavery to be simply an imaginary evil? or would the Doctor maintain that slavery is right? When I was a boy, said my beloved friend, in a short ramble from my father's house I encountered a neighborhood farmer who had a colored citizen tied to a large log of a tree lying on the ground. The man was lying on his face uncovered from his neck downwards. His driver had been lacerating him most unmercifully until his back was one entire mass of blood and flesh cut up in pieces, which were co-mingled and slowly amalgamating together. To complete the torture of his writhing victim who could scarcely move on account of the tightness with which his hands and neck and feet were bound to the tree, the citizen flayer caught a large cat, and so fastened the animal that in endeavoring to get loose the cat's talons continually tore the slave's already gory back, until the villain's vengeance was glutted when he released the cat, administered the usual plaster, salt, pepper, vinegar, etc. and ordered the son of anguish to resume his labor.[19]

Ruggles' civic activities grew. They included becoming the secretary for the Friends of Human Rights Committee, the Garrison Literary and Benevolent Association, and co-founder of the short lived organization, the American Reformed Board of Disenfranchised Commissioners. By 1838-39, he became the editor and publisher of the *Mirror of Liberty*, his own newspaper.[20]

However, his most engrossing activity began in 1835. The New York City Vigilance Society was formed as the city equivalent of the New York State Anti-Slavery Society, with Ruggles as its secretary. In this capacity Ruggles resisted black kidnapping attempts and spoke and wrote against slavery. He was clapped in jail after being seized by a certain Boudinot, a police "Negro catcher," who opposed Ruggles' work. Boudinot had falsely posed as an abolitionist and "friend of the Negro" on several occasions.[21] On being freed, Ruggles threw himself again into the Underground Railroad, as its New York City "station-master." In 1838 he performed a lasting service by sheltering the great Frederick Douglass, at that time an unknown runaway slave. Douglass married "the wife of his youth" in Ruggles' home. Ruggles then sent them on to New Bedford, Connecticut, to start their new life. Douglass later stated about Ruggles:

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[18] *Ibid.*, p. 8.

[19] *Ibid.*, p 23.

[20] Porter, "Ruggles: hydropathic practitioner," p. 131 ff

> He was a whole-souled man, fully imbued with a love of his afflicted and hunted people, and took pleasure in being to men as was his wont, eyes to the blind and legs to the lame. This brave and devoted man suffered much from the persecutions common to all who have been prominent benefactors.[22]

It is estimated that Ruggles was responsible for helping some 100 fugitive slaves from other areas of the country by sending them on their way north to more secure freedom. He worked day and night helping fugitives who were arrested and detained. The heavy burden of these activities was to cost him his health and life. Ruggles made it one of his duties to know the slave agents. For New York City and Brooklyn he compiled a "Slaveholders' Directory,"[23] containing the names and addresses of lawyers, police officers, city marshals, constables and other persons who "lend themselves to kidnapping." Ruggles' chief "villain" was a policeman named Lespenard. Ruggles himself was imprisoned without trial, confined "to a filthy jail" and refused bail on a charge of "harboring and secreting a Negro named Thomas Hughes alleged to be a slave for life."[24] He was discharged also without trial.

Having thrown himself into the Underground Railroad anti-slavery movement at an early age, working and enduring both physical and personal hardships, Ruggles found his health beginning to break down in 1837, at the young age of 27.[25] At this time Ruggles developed a "liver complaint and dyspepsia" from which he did not recover. His sight began to fail and he became blind. Among the physicians who treated him, and taught him some medicine, was a Dr. Swain of New York City.[26]

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[21] Porter, "Ruggles, an apostle of human rights," p. 37

[22] Frederick Douglass, *My Bondage, My Freedom* (Chicago· Johnson Publishing, 1970), originally published in 1855 by Miller, Orton and Mulligan.

[23] *The Mirror of Liberty*, January, 1839, *1*, no. 2: 35 This was Ruggles' newspaper, published in New York City

[24] This statement is attributed to Frederick Douglass and Martin Delany, editors of *The North Star*, by David Ruggles in *The Mirror of Liberty*, 1839, *1*, 35

[25] An 1837 letter by Ruggles to the Chairman of the New York Vigilance Committee refers to his "declining health " See *Colored American and Advocate*, Sept. 9, 1837, *1*, cited in Porter, "Ruggles, an apostle of human rights," p. 44.

Ruggles says he was "repeatedly bled, leeched, cupped, plastered, blistered, salivated, dosed with arsenic, nux-vomica, iodine, strychnine and other poisonous drugs" which caused an "enlargement of his liver, the worst kind of dyspepsia, irritation of the lungs, chronic inflammation of the bowels, piles, nervous and mental debility" and a "numb state of the skin" which rendered him insensible to the prick of a pin or to extreme heat. This parade of symptoms would suggest that Ruggles' continuing disease was, at least in part, the result of iatrogenic disease induced by mercury and arsenic. His turning to more natural and physiological methods seems quite understandable.

Despite his illness, Ruggles founded the newspaper, the *Mirror of Liberty,* three numbers of which appeared in 1840. It had to be abandoned because of his blindness and his poverty. He lived in New York City in destitution until 1842. That year, Lydia Maria Child, the great woman journalist, feminist, abolitionist and reformer, learned of Ruggles' blindness and destitution and persuaded him to come to Florence, Mass., (previously called Bensonville), a lovely community just outside of Northampton in the Connecticut river valley. The Northampton Association of Education and Industry, an egalitarian group, who insisted on equality of all without distinction of sex, color or condition, had been formed in April, 1842.[27] Ruggles was received into the Association as a member, given rest, adequate nutrition, sympathetic, intellectual and emotional support, and even met a great black colleague—namely Sojourner Truth, who came weekly as a washerwoman and a participant.[28]

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[26] Rogers, "Death of Dr Ruggles."

[27] The best contemporary account of the Northampton Association is a 7-page 1853 MS by a Mrs. Judson for A. J. McDonald, perhaps the major collector of information about the "socialist communities" of his time. It is reproduced in Noyes, *History of American Socialism,* pp. 155-170. The Association was founded by David Mack, Samuel Hill, George Benson, William Adam and six others. They were abolitionists, lived simply and believed that women should receive equal pay for equal work. They developed a Department of Education "to unite study with labor," and opened a boarding school. Their religious views differed from one to another. The Association dissolved in 1846. For further references on the Northampton Association see Alice C. McBee, *From Utopia to Florence: The Story of a Transcendentalist Community in Northampton, Mass , 1830-1852* (Northampton, Mass : Smith College Studies in History, 1937) and *Northampton Book· Chapters from 300 Years in the Life of a New England Town, 1654-1954* (Northampton, Mass : Tercentenary History Committee, 1954).

[28] Sojourner Truth's own book is *Narrative of Sojourner Truth· A Bondswoman of Olden Times With a History of Her Labors and Correspondence drawn from her 'Book of Life'* (1878; reprint ed., New York. Arno Press, 1968).

Then, probably from a Boston member of the community (and very possibly from Lydia Maria Child), Ruggles discovered the water cure. Not far to the north of Northampton lies Brattleboro, Vermont. While resting in Florence, Ruggles heard of the success of the water cure treatment (hydrotherapy) and decided to try the method.[29] He put himself in the care of Dr. Robert Wesselhoeft, a political refugee from Weimar, Germany, who had taken up residence in Cambridge, Mass. and was hydrotherapy's first sanatorium founder in the U.S. in Bennington, Vermont. (Other leaders were Dr. Shaw of New York City and Dr. Edward E. Denniston). Hydrotherapy had been founded by Vincent Priessnitz, a Silesian peasant who lived in Graefenberg, Austria. Hydrotherapy regimens included bathing, sulfur and mineral water drinking, exercise and massage. Sweating was considered one means of evacuation, along with purging, bleeding and other methods. (Today's sauna fad may be considered equivalent).

Ruggles obtained advice from Dr. Wesselhoeft through correspondence and after a few months, visited him in Cambridge. On examination, the doctor found that Ruggles had an enlarged liver, poor sight, and other ailments so serious that he had little hope for his recovery. Dr. Wesselhoeft urged Ruggles to discontinue work and rest for he believed his weakened condition was due in part to anxiety induced by difficulties in New York. Ruggles did have a remission. As Ruggles recovered (including his eyesight), he began to treat others in the Northampton vicinity, and then assumed the doctor role rapidly.

He set about to build a spa in Florence with the help of the Northampton Association and capital from others, including wealthy clients. The site consisted of 112 acres with several buildings. It became known as Ruggles' Water Cure Establishment, or the Northampton Water Cure. It was conveniently located about two and one half miles from the center of Northampton on the west bank of the Mill River. The buildings were erected with money advanced to Ruggles by friends or patients.[30] The main building was a large structure of two and one half stories and was 36 × 70 feet long.

Ruggles advertised weekly in various "movement" newspapers that he could "cure headaches, bronchitis, general and nervous disability, pulmonary affections, liver complaints and jaundice." Prospective out-of-town patients were urged to make written application stating their symptoms, age, occupation and complaints. Ruggles requested that all patients treated be "particular" in regard to diet, and punctual and faithful in their attendance to treatment "as my mode of practice will not admit any indifference or evasive course on the part of the patient."[31] Ruggles acquired many resident patients at that time and many cases of cures were reported in the *Water Cure Journal.*[32] The most notable included Isabella Van Wagener (better known as Sojourner Truth), William Lloyd Garrison and Mary Brown, Mother of John Brown, all famous abolitionists.

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[29] Porter, "Ruggles. hydropathic practitioner," p. 46.

[30] *Ibid*, p. 69.

Sojourner Truth had come to the Northampton Association before Ruggles' recovery and the development of the spa. She was then forty-nine and had suffered from various illnesses for a long time. She was afraid of baths, and declared the water cure a "humbug," although she stayed at the establishment for ten weeks. She submitted to the treatments, but she complained of chilliness and the long time it took her to become warm after being packed in ice.

In September, 1849, Ruggles relapsed and became worse. On December 16 he died at the age of thirty-nine. His mother and sister were with him during his last days and returned with his body to Norwich, Connecticut, their home and his place of birth.

William Wells Brown (1816-1884), a physician, was one of the leading black abolitionists and authors.[33] His first exposure to medical training was at eight years of age, when he was assigned to serve as office boy to his master, Dr. John Young.[34] Dr. Young was a slaveholding physician, who operated a plantation on the outskirts of St. Louis, Missouri. Later, presumably as a teenager, Brown "was made a part-time assistant to the physician, his principal duties being to prepare medicines, minister to ailing slaves and run errands."[35] Brown tells of a sad mistake he made then, as follows: "Being ordered by the doctor to extract a slave's tooth, I laid the patient flat on his back on the floor, got astraddle of his breast, put the rusty turn-keys on the wrong tooth, and pulled with all my strength. The result was, I took out a sound grinder."[36] He very nearly got flogged for that mistake.

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[31] *Ibid.*, p. 70.

[32] *Ibid.*

[33] William Lloyd Garrison's Epitaph, *The Liberator*, Dec. 16, 1847; The definitive biography of Brown is W. Edward Farrison, *William Wells Brown: Author and Reformer* (Chicago: University of Chicago Press, 1969).

[34] For Brown's prolific autobiographical, fictional, historical, and political works and his song writing see Farrison, *Brown*, pp. 459-460.

[35] Brown's daughter Josephine wrote a biography of her father in 1856.

[36] Farrison, *Brown*, p. 24.

However, life with Dr. Young was so far from idyllic that Brown and his mother attempted to escape. They got as far as Illinois, were recaptured, and she was "sold down the river" as punishment. Brown succeeded in a second attempt at the age of 20, walking away from a second master (a riverboat captain), in Cincinnati. After working in and around Cleveland and Buffalo, Brown became an abolitionist and a temperance speaker for Buffalo groups. In 1847 he began working for the Massachusetts Anti-Slavery Society where he replaced Frederick Douglass as its leading speaker.

The Fugitive Slave Act made Brown a marked man, and he was sent to England for some years. Among those who befriended him there was an abolitionist surgeon of Bristol, Dr. John Bishop Estin, who urged Brown to resume his medical studies. In England, Brown gave "over one thousand abolition lectures and exhibitions."[37] He also wrote the first novel by a Negro, entitled *Clotel*. This went through four editions, the last being published in 1867.[38] Brown returned to the U.S. and did his apprenticeship and some self study in Boston. By 1864 he had opened an office and he practiced medicine in Boston for a number of years.

Harriet Tubman (1820-1913) typifies the colored woman nurse and folk healer. She is officially referred to as a nurse and matron by many, including Surgeon-General V. K. Barnes of the Union Army and Dr. Henry K. Durant, Acting Assistant Surgeon in charge of the Beaufort, South Carolina "Contraband Hospital" for escaped and freed slaves, who worked with her for two years.[39] Dr. Durant's letters include one to a Captain Warfield requesting "please let 'Moses,' have a little bourbon whiskey for medicinal purposes."[40] This was the name by which Harriet Tubman was familiarly known, both in the North and in the South, as conductor to freedom for hundreds of escaped slaves during dozens of trips from slaveholding territory to the North, including Canada.[41]

Tubman's biographer, Sarah Bradford, described her role as follows:

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[37] *Ibid.*

[38] William Wells Brown, *Clotel; or the Colored Heroine, A Tale of the Southern States* (Boston: Lee and Shepard, 1867).

[39] Sarah Bradford, *Scenes in the Life of Harriet Tubman* (Auburn, N.Y · Privately printed by the author, 1869). We have used a reprint of Ms. Bradford's expanded second edition of 1886 in an unabridged reprint (New York Citadel Press, 1961) See pp. 139-140. The Appendix also quotes letters about Harriet Tubman's nursing role, pp. 137-38, 141-42, including an 1868 letter from Secretary William H Seward.

[40] Bradford, *Harriet Tubman*, p 141

[41] The Corinth subtitle of Sarah Bradford's book is "The Moses of her People."

> She nursed our soldiers in the hospitals, and knew how, when they were dying by numbers of some malignant disease, with cunning skill to extract some roots and herbs, which grew near the source of the disease, the healing draught, which allayed the fever and restored to health.[42]

Bradford quotes Harriet Tubman as treating fever as follows:

> I'd go to de hospital . . . I'd get a big chunk of ice . . . I'd take a sponge . . . I'd thrash away do flies . . . Den I'd begin to bathe der wounds.[43]

Harriet Tubman's "root doctor" role is shown in a wartime dysentery epidemic at Fernandia

> where the men were 'dying off like sheep,' from dysentery. Harriet had acquired quite a reputation for her skill in curing this disease, by a medicine which she prepared from roots which grew near the waters which gave the disease.[44]

In other words, Harriet Tubman included among her skills those of the folk healing "root doctor" and of the "granny midwife." Her drug use as "Moses," i.e., as an underground leader, included administering opium and paregoric to babies—so they would not cry while she was conducting the family in escaping from slavery on the Underground Railroad.[45]

Late in her life Tubman ran a "hospital" as Sarah Bradford calls it—but it was what we could call a nursing home—a long-term care institution for the sick, disabled and aged in her adopted home community of Auburn, N.Y.[46] Tubman's religious healer role is exemplified by the fact that she conducted her own farewell service, leading those at her bedside in singing spirituals, just before her own death in 1913.[47]

One of the outstanding women in the struggle for human rights and dignity was Sarah Parker Remond (1826- ?). She was the sister of the better known abolitionist, Charles Lenox Remond, the first black abolitionist speaker for the American Anti-Slavery Society, who was 16 years her senior. Sarah finished her medical training in 1868 in Florence, Italy, where she remained in medical practice until she moved to Rome and was said to be in practice in 1887.

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[42] Bradford, *Harnet Tubman*, p. 3, Preface. Sarah Bradford also puts Tubman's name next to that of Florence Nightingale, p. 4.

[43] *Ibid.*, p. 95.

[44] *Ibid.*, p. 98

[45] *Ibid.*, p. 130.

[46] Earl Conrad, *Harriet Tubman· Negro Soldier and Abolitionist* (New York: International Publishers, 1942), p. 47.

[47] Dorothy B. Porter, *The Negro in the U S.: A Working Bibliography* (New York University Microfilms, 1969)

She was born in Salem, Mass., on June 26, 1826 as a free black, the duaghter of John and Nancy (née Lenox) Remond. Her maternal grandfather was a Revolutionary War veteran who became a freeholder in Newton, Mass. Her white father had emigrated to Salem in 1798 from Curacao, in the West Indies. Her education was in the local schools of Salem. She met abolitionists in their homes and attended anti-slavery meetings, especially with her brother, Charles. She became an active member of the Salem Female Anti-Slavery Society and the county and state societies.

In 1853, Sarah bought a ticket for a performance at the Howard Athenaeum Theater in Boston. She was refused a seat and forcibly ejected from the premises. Instead of accepting the insult, she took her case to the police court before a Justice Russell. He sustained the equal rights of colored persons, fined the theater and assigned them the costs of the case.[48]

Sarah and Charles Lenox Remond spoke together at many meetings, suffering many insults and abuses because of their color and their abolitionism. By 1856 Sarah was herself appointed an agent of the American Anti-Slavery Society and spoke all over the east and midwest. She appeared at the National Women's Rights Convention in New York City in May, 1858. The United States was a difficult place for black abolitionist speakers in that decade under the cloud of the Fugitive Slave Act and the Dred Scott decision. Sarah became determined to take the slavery issue beyond the shores of America—to England, and to improve her education there.[49]

She arrived in Liverpool, England in January, 1859, and immediately began lecturing in England, Ireland, and Scotland. It was unusual for British women to lecture and travel, and perhaps this added to Sarah's immense audience appeal. Many who heard her donated money to the American Anti-Slavery Society. She was an enormous success. "She wore a beguiling air of refinement, a genteel pattern of manners so esteemed as an ideal of womanhood in Queen Victoria's England. She carried herself with an air of high seriousness, her speech was dulcet-toned and quiet, and her fluent vocabulary was free of unladylike turns of phrase."[50] She soon spoke in Warrington, Lancashire, under the auspices of a prominent British abolitionist, William Robson, and lambasted those who sexually abused female slaves. There were 800,000 mulattoes in the South, "the fruits of licentiousness—bringing nothing but desolation in the hearts of the mothers who bore them."[51]

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[48] Two biographical articles by Dorothy B. Porter are· "Remond, Sarah Parker," in *Notable American Women*, 3 vols (Cambridge: Harvard Univ Press, 1971), 3 136-137 and Dorothy Porter, "Sarah Parker Remond. abolitionist and physician," *J Negro Hist.*, 1935, *20* 287-293 Dr. Porter has additional materials (personal communication, September 17, 1975).

[49] Porter, "Sarah Redmond," based on *American and Foreign Anti-slavery Society, 13th Annual Report*, (New York: The Society, 1853), p 154. Also, see William C Nell, *The Colored Patriots of the American Revolution* (Boston R. F. Walcut, 1885), p. 319. Nell was a contemporary Bostonian.

In December, 1859 Sarah Remond applied for a visa to visit France. At the American Embassy in London, she was refused a visa on the grounds that persons of color had no rights as American citizens and she was accused of obtaining her passport "evidently by fraud."[52] Her written appeal to the U.S. Minister, George Dallas, was also refused.[53] Despite British press protests, the U.S. State Department upheld the London Embassy. She then got her visa from the British Foreign Secretary.

Despite her heavy lecturing schedule, Sarah had enrolled in the Bedford College for Ladies (now part of the University of London), in October, 1859. She attended classes there until 1861, studying history, mathematics, geography, French, Latin, English literature, elocution and vocal music. She boarded at the residence of Mrs. Elisabeth Jesser Reid, the widow of a physician and a firm abolitionist. Dr. Elizabeth Blackwell, the first regularly trained woman physician in the U.S. was also on a lecture tour for the woman's medical movement in 1858-59 and Dorothy Porter thinks they may well have met. Dr. Blackwell was also a strong abolitionist and undoubtedly knew of or had heard of Sarah Parker Remond.[54] Perhaps these two women planted the seed in Sarah's mind which later resulted in her becoming a physician.

One of Sarah Remond's outstanding addresses was given in 1862 before a social science congress, the International Congress of Charities, Correction and Philanthropy.[55] By 1864, a 30-page pamphlet by Sarah Remond had been published on "The Negroes and Anglo-Africans as Freemen and Soldiers."[56] Thus, she had made the transition to working through the Freedmen's Aid Association of London and related organizations. The following year there was a black insurrection in Jamaica and some anti-Negro "backlash" in England. She wrote a letter to the *London Daily News* protesting such attacks on the Negro. She also wrote an article opposing "Colonization."[57]

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[50] Benjamin Quarles, *Black Abolitionists*, p. 139. Other references to her British arrival in 1859 are in Jane H. Pease and William Pease, *They Who Would Be Free. Black Search for Freedom, 1830-1861* (New York: Atheneum, 1974), pp. 38-39, 65. The latter reference quotes from *The Liberator*, March 11, 1859.

[51] Letter from S.P.R. to a friend of the Editor, *Anti-Slavery Advocate*, London, 1858, *2*: 179-80; Pease and Pease, *They Who Would Be Free*, p. 38, based on an article originally in the *Warrington Times* (England, 1859).

[52] Porter, *Notable American Women*, 3: 137.

[53] Dallas was "outwitted" by Dr. Martin Delany in London in a famous episode.

[54] See the article by Elizabeth H. Thomson, "Blackwell, Elizabeth (1821-1910)," in *Notable American Women*, 1: 166. A distinguished British woman physician Dr. Annis Gillie, has written "Elizabeth Blackwell and the Medical Register," *British Med. J.*, 1958, *2*: 1253-1257. Elizabeth Blackwell's British trip was August 1858 to August 1859.

[55] It was printed as "The Negroes in the United States of America" in *Congrès Internationale de Bienfaisance de Londres, Session de 1862* (London: Bureau de l'Association Nationale pur le Progrès des Sciences Sociales, 1863), vol. 2. and as "The Negroes in the U.S.A.," *J. Negro Hist.*, 1942, *27*: 216-218.

In 1866, she left England for Florence, Italy, where she turned her focus to a new endeavor she must have considered for years, the study of medicine. She became a medical student at the Santa Maria Nuova Hospital in Florence and continued her studies there until 1868.[58] Her diploma certified her for "Professional Medical Practice."[59] Five years later, she was visited in Florence by the Rhode Island reformer, Elizabeth Buffum Chace, who wrote that "she had won a fine position in Florence as a physician and also socially."[60] No other detail about Dr. Remond's Italian days emerges until 1887. By then she had moved to Rome. Her own handwriting on her photograph states that she had acquired the married name of Pintor and in February 1887, Frederick Douglass described a visit to her and her sister Caroline, who was living with her, but does not mention medical practice.[61] Further research reports on Dr. Remond will be awaited with much interest.

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[56] Ladies' London Emancipation Society, Tract No. 7, 1864.

[57] *Freed-Man*, Feb. 1, 1866, 162-63.

[58] Porter, *Notable American Women*, 3. 137. No primary source is given.

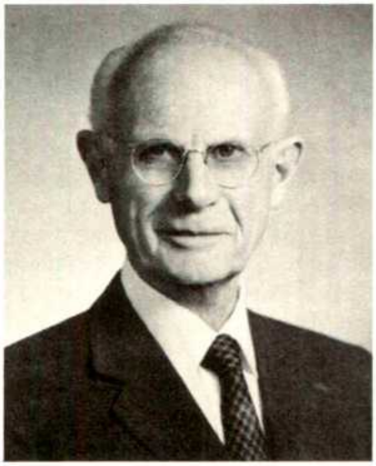
[59] Porter, "Sarah Redmond," quoting an undated newspaper clipping

[60] Lillie B. C and Arthur C Wyman, *Elizabeth Buffum Chase 1806-1899 Her Life and Environment*, (1914), 1 196; 2 42-43; cited by Porter, *Notable American Women*, 3 137.

[61] Feb. 11, 1887, Letter in Howard University Library, Moorland-Spingarn Collection.

MEDICO-HISTORICAL NEWS AND ACTIVITIES

CORRESPONDENCE AND REPORTS



ESMOND R. LONG (1890-1979)
President of the American
Association for the History of
Medicine (1940-1941)
A memoir by his long-time
friend and colleague, Dr.
George W. Corner.

Esmond Ray Long, physician, administrator, and scholar, during his fruitful career as pathologist and epidemiologist with special attention to tuberculosis, also made valuable contributions to the history of pathology that were recognized by election to the presidency of the American Association for the History of Medicine in 1940. In a manuscript autobiographical statement to the National Academy of Sciences he tells us that as a college student he developed an abiding interest in history, and that while a young instructor and later assistant professor of pathology at the University of Chicago he dealt in his teaching with the historical background of the subject. This seems to have been a spontaneous interest, but he was encouraged by his admired professor, H. Gideon Wells. At Wells' suggestion Long boldly undertook as his first historical publication a full-length *History of Pathology* (1928). In its compilation the young author was influenced by Fielding Garrison's *Introduction to the History of Medicine*, which it resembles in its emphasis upon the contributions of individual authors from ancient Egypt to modern times, with precise attention to bibliographical details. The book is thorough and is carefully written. In it Long thanks Garrison for encouragement and help. The next year he brought out *Selected Readings in Pathology* (1929). Both books promptly became standard sources of information for American physicians and students, and both went into second editions. Long's *History of American Pathology*, written much later in his career (1962), reflects the riper experience of his mature years and his personal acquaintance with contemporary American workers. After the appearance of the first two books Long frequently contributed to journals of pathology and medical history, articles on various his-

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torical topics. The first of these was an account of William E. Horner's *Treatise on Pathological Anatomy*, the first American textbook on the subject (*Archives of Pathology*, 1930). In 1932 he moved to Philadelphia to become director of laboratories at the Henry Phipps Institute for the Study of Tuberculosis and, later, director of the Institute. His new and heavy responsibilities did not interrupt the flow of occasional historical contributions. In 1935, for example, he published a brief but thoughtful article in *Annals of Medical History*, n.s. volume 8, on "The Concepts of Cardiac Pathology before Morgagni." Also among his publications are a dozen or more obituary notices of contemporary pathologists and fellow experts in the study of tuberculosis for various professional journals, the American Philosophical Society's *Year Book* and the National Academy of Sciences. In his later years he wrote several articles and books on the history of professional societies of which he was a member, notably the *History of the American Society of Experimental Pathology* (1972) and the *History of the American Association of Pathology and Bacteriology* (1974). In the midst of an incredibly busy career of medical research and service as consultant to governmental institutions and professional groups, he found time to act as special adviser to the staff of *Webster's International Dictionary* (3rd edition) on the definitions of medical terms, covering more than 15,000 items. For many years he was also a distinguished member of the Advisory Editorial Board of the *Bulletin of the History of Medicine*. Thus Esmond Long's career was a remarkable combination of scientific research, administrative service, and historical writing. By his example and by his ever warm and kindly interest in the historical studies of his friends and colleagues, he had a considerable influence on the study of the history of pathology in this country.

CONFERENCE REPORT: BETHUNE—HIS TIMES AND HIS LEGACY

To mark the 40th Anniversary of the death of Dr. Norman Bethune in China, the Bethune Foundation sponsored at interdisciplinary Conference at McGill University on November 16-18, 1979. The meeting was organized by Dr. J. Wendell MacLeod, a colleague of Bethune's and former Dean, College of Medicine, University of Saskatchewan, and by Hilary Russell, an historian with Parks Canada, responsible for research and restoration of the Bethune home-site at Gravenhurst, Ontario. Deliberately avoiding idolatry, the Conference struck a fine balance between biography and background and between an academic and a popular approach to these themes. The papers fell into three general categories. A number of presentations might be considered background papers, among which were Richard Allen's evocative recreation of life in a Presbyterian manse during the 1890s such as the Bethune family had occupied, and Lee Thompson's perceptive assessment of Bethune's connections and contributions to radical poetry in the 1930s. A second group of papers were comprised of reminiscences, often nostalgic and usually informative, by Bethune's former colleagues. Of particular note was Libby Park's recollections of the foundation of the Bethune Health Group in Montreal, Ted Allan's emotional assessment of his own relationship with Bethune in Spain (video-tape), and Jessie Boyd Scriver's (the first female intern at Royal Victoria Hospital) astute observations on medicine in Montreal in the 1920s and

30s. A third group of papers were more directly concerned with medical history. Charles G. Roland presented a vivid account of battlefield medicine and the stretcher-bearer's experience during the First War. The scourge of the "White Plague" in Canada from the 1890s to the 1950s was discussed by Katherine McCuaig. David A. E. Shephard gave a well-informed appreciation of Bethune's contributions to medical instrumentation. After studying the views of Bethune's colleague concerning his surgical skills, particularly those of the well-known Dr. Edward Archibald, H. Rocke Robertson's paper concluded that Bethune's talents were best suited to battlefield surgery. Finally, Terry Copp presented an articulate assessment of the health of the working class in depression Montreal. Judged by the quality of the papers presented and the enthusiastic response of the sizeable audience, the Conference was a marked success and a credit to its sponsors and participants.

SAMUEL SHORTT

CONFERENCE ON MEDICAL HISTORY AND ETHNOMEDICINE

An international Conference on Medical History and Ethnomedicine was held May 2-4 at the University of Hamburg. Sponsored by the Arbeitskreis Ethnomedizin in Hamburg and Cologne and the Institute for the Study of Medical History at the University of Hamburg, the conference drew scholars from many parts of Europe and from America. Papers on the medicine of ancient China, India, and Greece served as the background for discussions of folk and primitive medicine in all parts of the world. The goal of the three-day conclave was to treat the connection between Medical History and Ethnomedicine, but especially to trace the influences of early Schulmedizin on folk and primitive medicine; likewise the borrowings of folk and primitive medical prescriptions and regimens into medicine proper at different periods of history. The conference was planned and directed by Dr. Joachim Sterly, head of the Arbeitskreis Ethnomedizin and Editor of the eminent journal *Ethnomedizin: Zeitschrift für interdisziplinare Forschung*.

WAYLAND D. HAND

VLADISLAV KRUTA, 1908-1979

Vladislav Kruta, M.D., D.Sc., physiologist and medical historian, whose death on 6 September 1979 was briefly noted in the *Bulletin*, was past director of the Institute of Physiology of the Purkyně University in Brno, Czechoslovakia. He was born in 1908 and began his career as a physiologist at the Charles University of Prague in the 1930s. He developed many contacts with French physiologists and, as a convinced democrat, left Czechoslovakia before World War II for France. During the War he became medical officer for the 312th Squadron of the British Royal Air Force which was largely composed of Czechoslovak airmen and which won fame in the Battle of Britain. Kruta was one of the founders, in 1945, of the new medical school in the city of Hradec Králové in Czechoslovakia. He later took over the Chair of Physiology at the Purkyně University of Brno where, in spite of political obstacles, he developed a school of physiology concentrating on experimental cardiology. His lifelong interest in the history of medicine focussed particularly on the great Czech physiologists, Procháska and Purkyně. He completed an edition of Purkyně's *Opera omnia* begun before the war and wrote monographs on both these figures. Kruta became deeply involved in the new democratic activities of the Prague Spring in 1968 and, because he refused to recall his signature from the manifesto of "2000 words," was dismissed from his academic posts after the Russian occupation. He continued his historical studies until his death and he will be missed by his fellow historians of medicine.

ANNOUNCEMENTS
AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE

Call for Papers—Annual Meeting, 1981

The next annual meeting of the Association will take place in Toronto, May 13-16, 1981. The Program Committee invites both members and nonmembers to submit papers for the program. Those who wish to have papers considered for presentation are asked to submit an abstract of 300-350 words (5 copies) to the Chairperson of the Program Committee, Prof. William Coleman, Department of History of Science, South Hall, University of Wisconsin, Madison, Wisconsin 53706 by November 15, 1980.

Papers may deal with any aspect of medical history. The time allotted for presentation will be strictly limited to 20 minutes. A discussion period will be provided at the discretion of the session's presiding officer. Participants are reminded that the *Bulletin of the History of Medicine,* the official organ of the Association, reserves the right to consider for publication any paper delivered at the meeting.

NATIONAL NEWS

Aesculapian Boston

A new book entitled *Aesculapian Boston,* which is a guide to sites of medical historical interest throughout the greater Boston area, and which includes a chronology of Boston medical history, has been written by members of the Paul Dudley White Medical History Society. The Society received some editorial assistance from the Benjamin Waterhouse Medical History Society and generous financial assistance from the Massachusetts Medical Society in the production of the book. Its appearance was timed to coincide with the annual meeting of the AAHM in Boston and with the celebration of the 350th anniversary of the settling of the city of Boston.

American Institute of the History of Pharmacy

The AIHP held its annual meeting for 1979 on April 20-23 in Washington, D.C. In addition to contributed papers, highlights of the meeting included a symposium on the history of American homeopathy organized in conjunction with the Museum of History and Technology of the Smithsonian Institution. The Edward Kremers Award for 1980, for distinguished pharmaco-historical writing by an American, was presented to John Parascandola, University of Wisconsin, Madison, for his work on the history of chemical pharmacology. It was announced at the meeting that the George Urdang Medal would be awarded to Rudolf Schmitz of the Philipps-Universitat, Marburg for his distinguished research and publications in the history of pharmacy.

American Philosophical Society, Philadelphia

Dr. Edward C. Carter II, professor of history in the Catholic University of America and editor-in-chief of the Papers of Benjamin Henry Latrobe, has been appointed librarian of the American Philosophical Society in Philadelphia, the nation's oldest learned society. He will take up his duties there on September 1, 1980. In addition to the librarianship of the American Philosophical Society he will have an appointment in the Center for Early American Studies of the University of Pennsylvania. As librarian Dr. Carter succeeds Dr. Whitfield J. Bell, Jr., who has served since 1966. Dr. Bell remains with the Society as its executive officer.

Duke University, Durham, North Carolina

A one-day symposium on "North Carolina Medicine—History and Legacies" was sponsored by the Duke University Medical History Program and the Historical Collection, Duke University Medical Center Library on March 29, 1980. The aim of the symposium was to foster interest in all aspects of the history of medicine in North Carolina.

Emory University, Atlanta

The Special Collections Department of the Robert W. Woodruff Library, Emory University, announces the completion of a descriptive inventory for the papers of chemist and forest researcher Charles Holmes Herty (1867-1938), twice president of the American Chemical Society (1915 and 1916) and editor of the *Journal of Industrial and Engineering Chemistry* (1917-1921). His papers (152 ms. boxes covering the years 1878-1938) also document his service as president of the Synthetic Organic Chemical Manufacturers Association (1921-1926) and advisor to the Chemical Foundation, Inc. (1926-1928), his activities in support of the development of the American organic chemical industry, the Chemical Warfare Service, the organization of the National Institutes of Health and the development of the turpentine and paper industries in the South. The inventory was prepared through a matching grant from the National Historical Publications and Records Commission, with major assistance from the Southern Newspaper Publishers Association. The Special Collections Department is open for research Monday through Saturday, 9:00 a.m. - 6:00 p.m. Please address inquiries concerning the papers and the inventory to the above address, Atlanta, Georgia, 30322.

History of Immunology

The journal *Cellular Immunology* has recently announced (*42*, no. 1, 1979) the opening in its pages of a new section on the History of Immunology. Inquiries or manuscripts should be addressed to the Editor, Dr. H. Sherwood Lawrence, Department of Medicine, New York University Medical Center, 550 First Avenue, New York, NY 10016.

History of Veterinary Medicine

A group of enthusiastic veterinarians interested in the history of veterinary medicine started in 1976 to publish an international multilingual journal, *Historia*

Medicinae Veterinariae, devoted to the history of the veterinary profession. Volumes 1 (1976), 2 (1977), 3 (1978), and 4 (1979) have already been published. The journal appears quarterly. Annual subscription is $18 U.S. (approx.) The address is *Historia Medicinae Veterinariae,* Soendergade 39, DK-4130 Viby Sjaelland, Denmark.

Johns Hopkins Medical Institutions

The Committee on Cultural and Social Affairs of the Johns Hopkins Medical Institutions in cooperation with the Humanities Center of the Johns Hopkins University sponsored the "Humanities Symposium: Literature and Medicine" on May 13, 1980. The purpose of the symposium was to review the commonality of heritage between the humanities and the medical sciences and to explore the valuable contributions to be made by the humanities to the moral, ethical and philosophical problems faced by medicine today.

Smithsonian Institution

Nan Knight, Smithsonian Fellow in the Medical Sciences presented a report to the Department of History of Science on April 16, 1980 on "Medical Artifacts as Social Data: Preliminary Work with Radiology, 1896-1906."

University of Miami, Florida

Mrs. Isabel Caballero has been appointed History of Medicine Librarian at the Louis Calder Memorial Library of the University of Miami School of Medicine. She will undertake a program of acquisitions to expand the scope of the Library's resources in the history of medicine and, in particular, will focus on acquiring materials on the history of medicine in South Florida, the Caribbean, Central and Latin America.

PROGRAMS OF MEETINGS

The Beaumont Medical Club, New Haven, Connecticut

September 14, 1979: "Weighing the Heart Against the Feather of Truth," William B. Ober.

October 19, 1979: "Leyden Jars to Turning Machines: Medicine's Contribution to Technology," Wade G. Holcomb.

November 16, 1979: "What's So Special About Sir William Osler?" Philip K. Bondy and Thomas P. Duffy.

January 11, 1980: "The Missing Biopsy: MacKenzie and Crown Prince Friedrich," John A. Kirchner.

February 22, 1980: "A Second Look at Claude Bernard's Interior Environment," F. L. Holmes.

March 14, 1980: "Medical Science and International Cooperation: Albert Sabin, Polio, and the Soviets," Saul Benison (The John F. Fulton Lecture).

April 25, 1980: "The Foolmaster Who Fooled Them," James Harvey Young (The Beaumont Lecture).

Benjamin Waterhouse Medical History Society, Boston, Mass.

September 20, 1979. "William T. G. Morton and Ether: A Case of Uninformed Consent," Guillermo Sanchez.

October 25, 1979: "The New England Hospital for Women and Children: Women Doctors In Nineteenth-Century Boston," Virginia Drachman.

November 29, 1979: "An Historical Perspective of Domiciliary Medicine: The Boston University School of Medicine Home Medical Service and the Boston Dispensary," Edward A. Hatchigian.

January 10, 1980: "A Post-Mortem—Slightly Delayed," William F. McNary, Jr.

February 14, 1980: "Imhotep and Medical Skills in Ancient Egypt," J. Worth Estes.

March 13, 1980: "Hospital Nursing in the Early Nineteenth Century," Joel Montague.

April 17, 1980: "Have Tools Replaced Compassion in Medicine? (An Historical View)," Stanley Joel Reiser.

May 7, 1980: "The Relationship Between Celibacy and Longevity Among the Shakers," Edward W. Pelikan.

Bowman Gray School of Medicine Library Special Collections Lectures, Winston-Salem, North Carolina

March 15, 1979: "Neurology and Art," Lawrence C. McHenry, Jr.

December 12, 1979: "The Death of Enrico Caruso," Robert W. Prichard.

April 10, 1980: "Hospitals of the Golden Age of Islam," George Podgorny.

Josiah C. Trent Society for the History of Medicine in conjunction with the Duke Medical History Program, Durham, North Carolina

January 17, 1980: "Health and Disease in Ancient Egypt: The Life of Weaver, Nacht," John Senior.

Mayo Foundation History of Medicine Society, Rochester, Minn.

April 2, 1980: "History of Anorexia Nervosa and the Mayo Clinic," Alexander R. Lucas; "Adventures of Two Prairie Pioneers," Alvin B. Hayles.

Paul Dudley White Medical History Society and the Mendel Club, Boston, Mass.

March 6, 1980: "A Post Mortem—Slightly Delayed," William F. McNary.

Society of Medical History of Chicago

March 26, 1980: "Teaching and Learning: Retrospect and Prospect," Owen H. Wangensteen (Eleventh Annual Morris Fishbein Lecture).

University of Virginia Medical History Society, Charlottesville

January 15, 1980. "American Medicine and its Critics: Trends and Analysis, 1900-1960," John C. Burnham.

March 18, 1980: "Doctors and Disease Prevention: A Tumultuous Courtship," Stanley J. Reiser.

Waring Library Society, Charleston, South Carolina

March 14, 1980: "Three Medical Bibliographers," Frank Bradway Rogers.

Washington Society for the History of Medicine, Bethesda, Md.

March 20, 1980: "Health and Disease in the Pre-Columbian Tomb Pottery of Mexico," Manfred Waserman; "Eighteenth-Century Concepts of Fever," Dale C. Smith.

April 26, 1980: "From Graham to Rodale; or Nuts among the Berries," John B. Blake.

NEWS FROM ABROAD

European Centre of the History of Medicine

The European Centre of the History of Medicine was founded in October 1977. Its aim is to promote cooperation and coordination of research activities among European scholars working in the field of medical history. To this end the Centre intends to facilitate exchanges of information and organize meetings. The president of the Centre is Professor Pierre Huard (Paris). To date the Centre has published a Newsletter and completed a report on teaching and research in twenty-three European institutes of medical history. For further details please contact Dr. Guy Mazars, Secretary General, European Centre of the History of Medicine, Université Louis Pasteur, 4 rue Blaise Pascal, 67070 Strasbourg Cedex, France.

The Netherlands

The Department of History of Medicine of the University of Leyden and the Biohistorical Institute of the University of Utrecht jointly sponsored a one-day symposium on May 3, 1980 at Leyden on the topic "Ideal and Reality in Anatomical and Natural History Illustration."

South Africa

The Adler Museum of the History of Medicine, University of the Witwatersrand, Johannesburg has recently published an illustrated brochure about the museum and its collections. The museum also publishes the *Adler Museum Bulletin*, three times a year with information about its activities. For information write to Dr. Cyril Adler, The Honorary Director, Adler Museum of the History of Medicine, P.O. Box 1038, Johannesburg 2000, Republic of South Africa.

Venezuela

Guenter B. Risse, M.D., Ph.D., was elected corresponding member of the Sociedad Venezolana de Historia de la Medicina in Caracas, Venezuela.

BOOK REVIEWS

NOT MERELY INDUSTRIAL: CHANGES IN SCIENCE, MEDICINE AND SOCIETY IN VICTORIAN ENGLAND

M. W. FLINN*

An Essay Review

JOHN M. EYLER. *Victorian Social Medicine: The Ideas and Methods of William Farr.* Baltimore and London: The Johns Hopkins University Press, 1979. x + 262 pp. $19.50.

ROBERT H. KARGON. *Science in Victorian Manchester: Enterprise and Expertise.* Baltimore and London: The Johns Hopkins University Press, 1977. xi + 283 pp. $16.50.

It was T. S. Ashton who once said that the changes of the Industrial Revolution were "not merely 'industrial' but also social and intellectual." If he was right, one would expect Manchester, the "shock city of the age," in Asa Briggs's words, to have produced not merely the nation's cotton cloth but also a great outpouring of ideas. For by bringing together the latest industrial technology and a huge concourse of people, Manchester catalysed the two great intellectual challenges of the new industrial age—the maintenance of the competitive position of an increasingly science-based industry; and the solution to the apparently intractable problems of mass urban society. For the rest of the world Manchester was the epitome of the latter challenge. Every known social problem was to be found there writ large—public health, crime, housing, the education of the masses, and industrial relations—and in the score of years on either side of Queen Victoria's accession Manchester's social problems were subjected to the most intensive scrutiny by both Mancunians and outsiders. James Phillips Kay had inaugurated this flood of studies with his famous report on *The Moral and Physical Condition of the Working Classes* of 1832, and this much-quoted pamphlet was quickly followed by Gaulter's study of the 1832 cholera epidemic and Peter Gaskell's general survey of 1833. Sir Charles Shaw, Manchester's Chief Police Commissioner, wrote an able and extremely honest survey of the city's problems in 1842, while the distinguished scientist Lyon Playfair, who passes fairly quickly through the pages of Professor Kargon's book, produced another in the *Report* of the Royal Commission on the State of Large Towns in 1845. From overseas, Léon Faucher described the city's social problems in a well-known pamphlet of 1844, and Manchester was the principal focus, of course, of Friedrich Engels's classic of 1845.

As well as in these individual studies, Manchester's social problems were also studied collectively by the new societies spawned in the enthusiasm of the early 1830s for "statistics." Manchester was one of the first of the provincial cities to

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* University of Edinburgh

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establish a local statistical society, and there is a "statistical" survey of the city by the society of 1842. The local statistical societies, of course, were merely the provincial manifestations of a wider national movement exemplified by the London (later Royal) Statistical Society and the British Association for the Advancement of Science. To a considerable extent the "statistical" movement was the preserve of enthusiastic amateurs, but a small group of professionals emerged, though they did not dominate the field for some years. Pre-eminent among the latter was William Farr. The son of a Shropshire farm labourer, Farr had been sponsored through a medical training by the farmer to whom he had been apprenticed at the age of eight. After formal qualification, Farr elected to become a medical journalist and in 1837 he secured an appointment in the newly-created office of the Registrar-General for England and Wales. For the next forty-three years he dominated and virtually directed the statistical work of this office which had responsibility for the civil registration of births, marriages and deaths and for the decennial censuses.

It was the constructive use to which Farr put his position that makes him such a central figure in English demography and the public health movement of the nineteenth century. The well-known absence of all but a handful of private papers has seemingly discouraged would-be biographers until now, but Professor Eyler has brilliantly succeeded in illustrating Farr's importance by drawing on his copious writings both in the "Letters" to the Registrars-General which formed the body of the *Annual Reports* and in papers to the Statistical and other societies. He does this, not by attempting more than the merest outlines of biographical narrative, but by concentrating on the handful of themes that most attracted Farr's attention—the evolution of sound mortality statistics; life tables; epidemiological theory; the health of urban workers; and military health statistics. He succeeds both in demonstrating the long-term significance of Farr's pioneering work and in revealing its technical limitations. To achieve this in areas as diverse as those spanned by Farr himself calls for expertise in a range of skills rarely combined with those of the historian. Perhaps this is why we have had to wait so long for a scholarly study of Farr. The wait, however, has been worth it since Eyler's book sets an authoritative assessment of Farr's work against a background of the history of the sciences of demography and epidemiology in the key half-century covered by Farr's working life. It will clearly stand as the definitive study of Farr's achievements for a long time to come.

Beside Farr's professionalism, the activities of most of the scientists and social scientists described in the early chapters of Professor Kargon's book appear very provincial and amateurish. In *Science in Victorian Manchester* Kargon pursues with great originality and erudition the evolution from largely gentleman-amateur beginnings of a school which ultimately included some of the most distinguished scientists of the late Victorian era. He does this by distinguishing four chronological but overlapping phases of socio-scientific evolution. The first—that of what he calls the "Old Network," or "gentlemen with cultural aspirations"—was the era mainly of industrialists and professional men who, conscious that they were occupying positions of leadership in the industrial capital of the world, felt the need to foster scientific education and research not merely to ensure that Manchester's technological primacy was maintained, but, perhaps more importantly, that, through a vigorous scientific movement, Manchester should be seen by the rest of the world to be a great cultural centre and not merely a place of factories and filth. The vehicles for this crusade were a small group of societies of broadly two types. The first, in imitation of London's Royal Institution, used its own accommodation for public lectures and research by a salaried "professor"; and the second, of which the Literary and Philosophical Society was always the senior, provided primarily a forum for the regular presentation and publication of its members' scientific papers. Though the hope was always that these societies would promote scientific research of direct relevance to industrial technology, much of the work presented was, in the event, of a more theoretical and exploratory nature.

Manchester's great good fortune in the age of the "Old Network" was the presence in the city of John Dalton for almost the whole of the first half of the nineteenth century. Dalton was content to use the Manchester societies as the principal vehicle for the publication of most of his scientific papers. By eschewing the wider publicity of the national scientific press he brought distinction and a professional edge to activities that might otherwise have foundered through mediocrity. Dalton and the "Old Network" were succeeded gradually in the late 1830s and 1840s by the group Kargon calls "the devotees." Like the "Old Network," most of this group came from relatively wealthy industrial homes, though its most important members—Edward Binney, John Leigh and Joseph Baxendell—were able to devote their full time to scientific activities and achieved results of real worth. This group, too, was sustained by the presence of another scientist of international status, James Joule. The "devotees," however, were fairly quickly upstaged by a really professional group of incomers dubbed by Kargon "the civic scientists" because at this point in time—the 1840s—it was becoming impossible for Manchester's scientific elite to ignore the social problems to which Farr and the social statisticians were drawing attention. The "civic scientists," several of them boasting German Ph.D.s acquired under Liebig and Bunsen, opened up research into environmental problems—primarily of air pollution, but also of water pollution and sewage disposal.

The culmination of Kargon's story is his account of science in Owens College, the progenitor of Manchester University. The general history of Manchester University has already been brilliantly written by a former Professor of English Literature, H. B. Charlton, but in the hands of a historian of science like Professor Kargon it comes alive in a very different and much more exciting way. To a considerable extent it is the history of the impact of a small number of towering personalities. The energies of men like Edward Frankland, Henry Roscoe and Arthur Schuster, while fundamental to the development of the college and the university as a research centre of high international repute, were also directed towards fostering the civic and industrial links that had given birth to the College in 1851 and that form one of the main strands of Kargon's book.

There is inevitably an element of arbitrariness and convenience in Kargon's four-phase division of what was, at least in the first three phases, a continuous process, and the labels by which he identifies them are apparently of his own invention. But it is a useful analytical device and he studies each of his progressively professional scientific phases mainly through the work of individual group members. While this carries the advantage of emphasizing the role of personality in these developments in addition to allowing the scrutiny in some detail of the scientific work actually accomplished, it leaves the reader less sure about the make-up of the group that so often provided the stimulus, psychological and financial, for the activities of the leaders. Movements of this kind described by Kargon are often susceptible to quantitative analysis of society membership, and even if analysis of this kind must be confined merely to membership of the societies' councils it could still have thrown valuable light on the social, educational and occupational background of the movement's grass roots. The other *lacuna* felt by a Mancunian reviewer is that of the wider cultural background. Manchester's scientific achievements, so lucidly and enthusiastically described by Kargon, could not have existed in a cultural vacuum, and indeed reflected an energetic intellectual power-house which during Kargon's period gave birth to one of the world's great orchestras and one of the world's great newspapers, not to mention a group of distinguished secondary schools. Much of this cultural activity stemmed, like some of the scientific work of Kargon's third and fourth phases, from the immigrant groups in Manchester. Kargon is particularly successful in showing Manchester's scientific links with continental developments and it is a pity that he has not tied these more firmly to the general cultural leadership provided by the German and Jewish communities in late Victorian Manchester.

The Johns Hopkins University Press may be proud of these two books. Both are beautifully produced monographs in the best academic style of presentation and are important contributions to our understanding of the intellectual climate of Victorian Britain.

SCIENCE, POLITICS AND THE FLU

ARTHUR M. SILVERSTEIN*

An Essay Review

W. I. B. BEVERIDGE. *Influenza: The Last Great Plague: An Unfinished Story of Discovery*. New York: Prodist, 1977. xii + 124 pp. Ill. $6.95.

JUNE OSBORN (Editor). *History, Science, and Politics: Influenza in America 1918-1976*. New York: Prodist, 1977. 135 pp. Ill. $7.95.

RICHARD E. NEUSTADT AND HARVEY V. FINEBERG. *The Swine Flu Affair: Decision-Making on a Slippery Disease*. Washington: U.S. Department of Health, Education and Welfare. 1978, ix + 189 pp. $3.00.

A theory popular during the early 1970s held that serious pandemics of influenza might be expected at approximately eleven-year intervals. Since episodes involving new influenza strains had occurred in 1946, 1957, and 1968, the isolation of a major new strain of the virus from a minor outbreak at Fort Dix, New Jersey early in 1976 appeared to virologists to be the harbinger of the next pandemic. Especially troubling was the similarity of the new strain to the virulent swine influenza which had caused many millions of deaths throughout the world during the great pandemic of 1918-1919. Never during the modern period of virology had a new influenza strain characterized by a double antigenic shift failed to spread in pandemic form, but never also had it been detected so early as to provide time for public health countermeasures. With an initial rapidity and unanimity of opinion rare in government and in science, a National Influenza Immunization Program aimed at preventive immunization of substantially the entire population of the United States prior to the next influenza season was recommended by the experts, announced by the President of the United States, and approved by the Congress.

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The emergency immunization program quickly encountered a series of both major and minor problems. Some were inherent in a venture of this type, some were the product of other forces at work within the society, and some were the result of chance events that could have been neither anticipated nor controlled. Thus, the program early on was plagued with the question of how to provide liability insurance for those who produced and those who administered the vaccine. Next, the outbreak of Legionnaires Disease, thought at first to be swine flu, exerted a profound effect upon the program. Finally, the recognition of Guillain-Barré syndrome as an occasional accompaniment of swine flu vaccination led to suspension of the immunization program, and almost guaranteed the term "fiasco" which the next Secretary of Health, Education and Welfare employed to characterize that entire public health venture. But the single most important factor that served to discredit the program was something that did not happen—the swine flu virus disappeared as suddenly as it had come, and pandemic influenza did not occur.

The swine flu affair of 1976 led to a number of perhaps predictable consequences. It heightened the interest of the scientific community in the almost unique biology of the ever-changeable influenza virus which exempted it from the long-term control measures to which almost all other infectious agents are susceptible. It reinforced also the interest of the public health community, which would eventually have to come to grips with the broad social problems posed by this recurrent pandemic disease. It attracted the attention of the historian of medicine as a neglected area in his field, and of the political scientist as a case study in how public health policy is formulated. And finally, as is so often the case when things appear to go wrong in government, it led to the identification and punishment of scapegoats held to be responsible for the program's "failure."

Beveridge's purpose in writing his short volume on *Influenza: The Last Great Plague* was "to interest and enlighten the general reader, and to provide the doctor, research virologist, and public health authority with a panoramic view of the epidemic behavior of influenza from the earliest historical record to the latest research." He succeeds admirably in the former purpose, combining the authority of 40-odd years of work in influenza with a clear and not overly technical description of this interesting, and in many ways unique, virus. Of special interest is Beveridge's discussion of influenza in animals and especially in birds, and the possibility that virulent human strains may arise from this reservoir. The nonspecialist will be most interested in Beveridge's brief summary of the nature, versatility, and capriciousness of the influenza virus, including just enough of the genetics, molecular biology, immunology, and epidemiology of the virus to enable the reader to understand why it recurs periodically in epidemic and pandemic form, and why it is so difficult for the preventive medicine and public health experts to keep up with it.

Beveridge does not succeed quite so well in serving the professional, for the expert in almost any field will feel that much of potential interest to his discipline has been omitted in the interest of brevity. But the book should be useful to anyone who wishes a point of departure for a foray into this interesting field. The historian, while being generally disappointed in the cursory treatment of the history of influenza, should find the chapter on "The Influenza Chronicle" of more than passing interest. In this, Beveridge has identified, from a variety of historical records, some twenty pandemics of influenza over the past two and a half centuries. Curiously, most of them appear, for reasons unknown, to have originated in Central Asia.

The swine flu affair also attracted the attention of the American Association for the History of Medicine, and June Osborn, a pediatric virologist who had been personally involved in the program, was invited to organize a symposium on this topic for the 50th annual meeting in May 1977. *Influenza in America 1918-1976* represents the proceedings of this symposium. In view of the fact that this symposium was prepared for an audience of historians of medicine, the overall product must be viewed with disappointment. In the first chapter, historian Alfred W. Crosby, Jr. provides a nine-page summary of his engrossing story of the influenza pandemic of 1918 (*Epidemic and Peace, 1918,* Westport, Connecticut: Greenwood, 1976). The reduced version, however, is quite disconnected and unsatisfying, and lacks the fascination and excitement of the original. The second chapter describes the events that led up to the decision to have a national influenza immunization program. This was written by J. Donald Millar (who directed the involvement of the Center for Disease Control in the swine flu program) and June Osborn. This chapter contains a wealth of information on the scientific, technical, and social status of vaccines in general and influenza vaccine in particular, at the time that swine flu appeared in early 1976. Unfortunately, little of this information will be useful to the historian, since no reference to original sources is made. But what the earlier contributions lack, the third chapter provides in abundance: Arthur J. Viseltear has written a scholarly political history of the congressional involvement in swine flu legislation. This contribution is not only replete with almost 100 references to the primary literature, but is accompanied by 60-odd pages of appendices which provide copies of important congressional material. For anyone interested in this aspect of the history of swine flu, Viseltear's contribution will prove invaluable, and indeed justifies the entire volume.

Of equal value to the historian and political scientist is *The Swine Flu Affair* by Richard E. Neustadt of the John F. Kennedy School of Government and Harvey V. Fineberg of the School of Public Health, both at Harvard. This retrospective study was commissioned by the newly-installed Secretary of HEW, Joseph Califano, to review the swine flu affair and "draw some lessons for future policy making." As the authors have interviewed substantially all of the active participants, it is primarily an oral history—a study of the anatomy of a major public health policy decision. The story is an interesting one, and the authors tell it well. While many important elements of detail are omitted, all of the major factors that contributed to the ultimate decision are recounted. Extremely valuable also is a set of appendices which includes a "cast of characters" involved in the swine flu affair, an extensive chronology of events from January 1976 to March 1977, and a collection of some of the more important primary documents as well as references to numerous other primary sources.

The great value of this report is compromised by two very glaring defects, one of omission and one of commission. A very important factor in public policymaking, especially in a situation correctly or incorrectly perceived as a "crisis," is the psychological sense of the participants. Nowhere do the authors take into account the very real feeling of the government health officials and their scientific advisors *at that time* that a 1918-type of deadly epidemic *might* be in the offing, and the frenetic pace of events that involved everyone caught in the whirlwind. But in addition to the objective facts, the report also contains a continuous series of unsubstantiated and even ungenerous judgments on the personal motives of some of the actors in the drama. The authors are almost explicit in concluding, without convincing evidence, that several government health officials and scientists acted less from a sense of public duty and responsibility than for reasons of personal aggrandizement. If it is a coincidence, then it is an unfortunate one for this report, that its conclusions serve to justify the Secretary of HEW (who sponsored the study) in calling the swine flu affair a "fiasco," and in indicting as the culprits in the piece the two top government scientists responsible for public health and preventive medicine, both of whom were removed from their jobs. Neustadt and Fineberg conclude that "too much was decided too rapidly." Had swine flu actually arrived in the winter of 1976, then one can equally well imagine a Secretary of HEW demanding an investigation of why things went wrong: an analogous report would probably then have concluded that the same culprits had decided too little too slowly!

TODD L. SAVITT. *Medicine and Slavery: The Diseases and Health Care of Blacks in Antebellum Virginia*. Urbana: University of Illinois Press, 1978, 332 pp. Ill. $15.00.

Medicine and Slavery by Todd L. Savitt is a well-documented book written by a former medical student who has chosen a formal career in the history of medicine. He describes medical conditions as they existed in antebellum times, and the historical relationships between the health and medical care systems of blacks and whites.

The pattern of disease in antebellum Virginia was very similar to that observed throughout the South. Blacks, generally, whether they were freedmen or slaves, had very limited health and medical care available. They usually relied on home remedies as well as on other unorthodox medical practices. It is of crucial importance to recognize that the antebellum physician, master, and the white community in general, saw distinct differences between the races in the way diseases would occur. Even the same diseases would be treated differently amongst whites and blacks. Health problems were more than a political or humanistic concern; they were a matter of special economic interest because the slaves who could neither protect nor care for themselves were wards of their owners. The treatment of diseases by physicians and self-taught practitioners of the antebellum period primarily had an economic motive.

Many arguments arose concerning the inherent immunity possessed by blacks, the underlying assumption being that "blacks were both medically and mentally inferior to whites." The correlation of physiological and anatomical differences between races, including the relative susceptibility to certain diseases, helped to promulgate this idea. Many Southern writers discussed such physiological differences as hair textures, skin color, odor, posture, and facial features and even spent time examining the dimensions of the cranium and the size of the brain. Most commentators of the period used these studies and investigations to justify slavery. The fact that Thomas Jefferson accepted the principle of inherent racial differences is evident in his statement, "never bleed a negro."

Commentators of the period recognized the fact that blacks showed greater resistance to certain diseases than whites. The real concerns for the bondsman's health were that these diseases would kill slaves during the initial attack, and that the bondsman's incapacitation would have an economic impact during the height of harvest season. They were also concerned about the possibility of relapse. The author investigates sickle cell anemia and malaria in detail from these vantage points. Professor Savitt attempts, with a high degree of success, to explain inherent and contracted immunity, as described by antebellum physicians; and he further attempts to compare and contrast modern medical theories on these immunities.

Another theory of the health-care practitioners of the antebellum period was that blacks, because of their African origins, could not withstand cold temperatures. Savitt points out vividly that the agricultural journals of the day constantly prodded the slave owner to provide the slaves with ample clothing during the harsh winters of Virginia. These practitioners also felt that blacks possessed less resistance to various types of respiratory infections. Other curious theories were that blacks breathed less air than whites; they eliminated greater quantities of carbon through the skin; and their so-called heat-producing centers within the body would be over-taxed during cold weather. Whites supported these beliefs by observing that blacks lost limbs because of frost and that more whites died of heat strokes than blacks.

Because, as always, health and living conditions are interrelated, Savitt attempts to describe many of the factors that contributed to poor working conditions and over-crowding in the slave quarters. The factors he studies include poor ventilation and the improper personal hygiene that led to such parasites as bedbugs, lice, and ringworms. The white community expressed deep interest in these conditions because of the possibility of a slave's spreading disease through the slave community and into the master's house. There is little mention of any sanitary problems in either white or black communities. It was reported that the slave's body was host to at least five varieties of intestinal worms. Most slaves' quarters were cramped and close; and slaves' clothing, shabby and ill-fitting. In addition, food and general dietary conditions produced so many vitamin deficiencies that Savitt must have found it difficult to determine which vitamins slaves lacked. These bondsmen ate cornmeal and frequently also decaying salted meats or pork. Some historians of the period feel that pork must have been an indispensable part of the slave's diet. Other important foods included the sweet potato and sea food from the numerous rivers that emptied into the lower tidewater area of the Chesapeake Bay. It is generally thought that the children were irregularly and improperly fed by elderly relatives. Perhaps because of such undesirable diets, later generations of the black population manifest high levels of hypertension. There were some industrial slaves who moved to urban areas, and their nutritional intake depended on their own resources and those of the master.

The conditions for both the urban and rural slaves were hazardous, but the newspapers in the urban areas tended to emphasize the disasters and calamities that occurred within the confines of the urban scene. Some slaves who worked in coal mines acquired black lung disease or were subjected to methane gas explosions. The slaves were in constant danger of injuries when they worked on an industrial site. The female slaves were particularly subject to menstrual pain and other disorders, while the children were always susceptible to normal childhood diseases. Savitt states in general that childbirth was a dangerous procedure for both mother and infant, even though the mortality rate was lower among slaves than among whites. Operations on slave women helped physicians to perfect the Cesarean section.

The antebellum medical authorities often referred to "smothering, overlying or suffocation of children," a phenomenon which is reminiscent of what we know today as the sudden infant death syndrome. But a more interesting fact was that most of the sudden infant deaths tended to occur during the winter months. Overall, the most prevalent illness of the antebellum black was some form of infectious disease.

Medical statistics from the period are very inadequate and inaccurate because county health authorities did not keep reliable records on slaves; moreover, the utilization of various terms had not been standardized. Further, knowledge of the causes of various diseases was limited. There were also certain health problems, such as those resulting from the whipping of slaves, which received little or no study with respect to their long range effect on the bondsmen.

Another important chapter of the book deals with the reliance of slaves on self-treatment or cures recommended by friends and older relatives. Thus, there was a battery of home remedies, but Savitt does not discuss these in detail. It is known that many bondsmen would delay requesting assistance from the master until the disease had become acute. Some doctors sold medicine chests filled with various remedies to the plantation owners. The documentation seems to indicate that certain home treatments had some success, while, with other diseases, the home remedies may have been injurious to the bondsmen. For example, a drink of vinegar and nails was thought to cure aches and pains.

Several of the larger plantations had plantation hospitals. Some slaves would take advantage of these hospitals to escape from their responsibilities. Unorthodox health programs also developed, including homeopathy, Thomsonianism, and hydropathy. In many slave communities, the bondsmen retained ancient rituals, procedures, and herbs from Africa. Many whites were neutral to or ignored such remedies unless they saw some positive results. Most white doctors did not accept competition from tribal medicine. Within the urban communities there were slaves and freed blacks who had acquired some knowledge of nursing. Even the free black barbers had acquired certain medical techniques. Free blacks and slaves who were assigned to industrial jobs had reached an agreement with the local overseers about fees for medical care. The slaves in the urban areas definitely had the advantage of having physicians closer at hand and a greater variety of sources of funds for health care.

Savitt, in giving some attention to the plight of the elderly slave, finds that the documents depict the system as quite humane. Further, sketchy statistics tend to indicate that more slaves died of old age than whites. Actual conditions, of course, varied from plantation to plantation and master to master. For example, free blacks in Virginia may have suffered medical hardships because they had to pay for their own medical care and, Savitt observes, malnutrition was quite prevalent. Savitt mentions Dr. Thomas H. Dunn from Mathews County, Virginia, who (though white) might charge certain freed blacks an annual fee of sixteen dollars, while ignoring larger medical bills for other families and individuals. By such examples Savitt attempts to demonstrate the humanity and generosity of the slave masters and local physicians. It should be noted, however, that there were some black societies (including churches and other organizations) that attempted to support community aid groups from their weekly gifts and donations. Freed blacks were not the subject of community concern or interest except in life-threatening epidemics. Virginia had several of these epidemics during the 19th century including small pox, cholera, and yellow fever. The mere location and living conditions of the blacks generally enhanced the spread of some of these diseases because blacks lived near and made use of waters where waste was plentiful.

It is interesting to note that blacks and whites received comparable treatment when suspected of insanity. There was some feeling that bondsmen were less prone to insanity than whites. Certain physicians and other whites of the time entertained the idea that a slave was a "simple unthinking animal-like being who was sheltered from the tensions of life." The danger of this view was that a bondsman who raised serious questions as to the efficacy of slavery may have been considered insane and treated accordingly. It is worth noting that during the antebellum period, five to ten percent of the persons admitted to the mental asylum at Williamsburg—the first state mental institution—were free blacks, but that none were slaves. A weakness in the manuscript is the author's failure to explain to what degree blacks who protested against slavery were treated as insane persons. One startling fact about the medical system of the time (a fact having echoes today) was the extensive use of free blacks and bondsmen in medical experiments, in clinical instruction, and as objects of medical display.

This innovative book discusses diseases and cures from a medical standpoint and relates them to some basic public health principles of the time. The author examines the medical practices of whites and blacks, relating them to the various working and living conditions of the antebellum period. He attempts to go further than just presenting a simple analysis of diseases that afflicted the black population of the South, and thus uses existing documentary materials from the predominantly white population to develop an impression of health conditions in antebellum Virginia.

The major shortcoming of the book is that Savitt's analysis is written only from the frame of reference of the white physician, slave-master and overseer. Because of the limitations of Savitt's documentation and information, one constantly wonders, while reading the study, what the story would be like if told from the point of view of Uncle Bob Butts, a poor, lowly gravedigger in the antebellum South, whose mere idleness in town signified that an epidemic no longer was raging. Again, we might consider a statement by one slave after a whipping: "I can't never forget how my massa beat my brothers cos dey didn't wuk. He beat em so bad dey was sick a long time, and soon as dey got a smatterin better he sold them." Such statements add to our appreciation of some of the medical conditions during the period. Thus, a richer exercise would be to examine the slave's position on medical treatment; for that position might recall today's problems of medical care for the aged, poor, and disadvantaged in this country and throughout the third world. A further limitation of this book seems to be a lack of detailed description and analysis of all the medical procedures and experiments to which the antebellum slave was subjected. Nonetheless, *Medicine and Slavery* by Todd Savitt is a most substantial contribution to the history of medicine of the antebellum South.

Reviewed by Ernest C. Hammond, Jr., M.S., Department of Comprehensive Science and Science Education, Morgan State University, Baltimore, Md.

David A. Rottenberg and Fred H. Hochberg (Editors). *Neurological Classics in Modern Translations.* New York: Hafner Press; London: Collier Macmillan Publishers, 1977. ix + 316 pp. Ill. $22.50.

Many classical descriptions of disease of the nervous system have been published in European medical journals which are only available in a few of the major libraries in America. Moreover, being written in languages that are little understood or read by American physicians and even less by medical students, these contributions have become known through excerpts from papers, often taken out of context, and, at times, inaccurately translated. Thus, the thinking of these early neurologists has been, at times, distorted and misinterpreted.

The editors of this book have selected a number of papers, originally published in French, German, Italian or Spanish, each of which at the time of their publication introduced a new concept of central nervous system disease, or defined a previously unrecognized neurological entity. The translations of these classics convey in fluent English the erudition and spirit of the original masterpieces. These papers have been grouped under general topics, for each of which an introduction has been written explaining the significance and impact of the essay.

These introductions vary considerably in style and content. Some are historical reviews of the background knowledge at the time that the paper was written. Others are short commentaries on the presentations.

The subjects and authors of the papers included in the groups are as follows:

Morphology—Ramon y Cajal
Presenile dementias—Pick, Alzheimer and Bonfiglio
Alcoholic dementia—Wernicke, Morel, Marchiafava and Bignami
Myoclonic dementia—Creutzfeld, Jacob
Dysphasia, dyspraxia and disorders of the body image—Babinski, Broca, Gerstmann, Liepmann
Pain and sensibility—Déjerine and Roussy
Spinocerebellar degeneration—Marie, Déjerine and Thomas, Roussy and Levy
Narcolepsy—Gélineau
Infectious polyneuritis—Landry, Guillain, Barré and Strohl

The translations convey accurately the meaning of the authors. When illustrations were given in the original text, they have been well reproduced. The references from the papers are included. The subjects have been well chosen although, since all contributions of the English neurologists are omitted, the influence of the Queen Square School, which was considerable, is not appraisable. Certainly, isolated classical papers do not give a sense of unity or continuity which the historian might desire.

From these translations, the younger neurologists and medical students should gain some understanding of the problems which the early neurologists faced in their attempts to establish a clinical nosology for diseases of the nervous system. These neurological classics will be welcomed by all those who wish to delve into the roots of neurology. Medical historians should find them to be a useful reference to the origins of clinical neurological syndromes.

Reviewed by A. EARL WALKER, M.D., Professor of Neurological Surgery, School of Medicine, University of New Mexico, Albuquerque, New Mexico.

The Evan Bedford Library of Cardiology: Catalogue of Books, Pamphlets and Journals. London: Royal College of Physicians, 1977. xi + 245 pp. £30.

Although a prominent figure in British cardiology throughout the middle of the 20th century, Evan Bedford was little known to medical historians or librarians. The appearance of the printed catalogue of his library of cardiology has set a new standard for medical bibliographies and will remain a standard reference for decades to come. The collection was built by Bedford himself, but the catalogue was the combined effort of Bedford and members of the staff of the library of the Royal College of Physicians where the collection is now housed.[1] What was produced by this happy union is a handsome and readable guide to the history of cardiology through its literature.

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[1] Modest reference to the efforts of Gordon Smith and Leonard Payne is made in the editorial note in the volume. Each contributed in a major fashion to the production of the volume as was admitted in a personal communication from Mr. Payne.

Like William Osler, Evan Bedford was first a clinician. Both were deeply devoted to the history of medicine and both shared a love of books gone wild—bibliomania. Happily, each sublimated this trait into the formation of a magnificent library to be preserved for future generations of scholars. Although the Bedford collection is limited to cardiology, many of the strengths of the *Bibliotheca Osleriana* are found in the Bedford catalogue.

Bedford graduated from medical school in 1918 and began collecting books relating to the cardiovascular system in the mid 1920s. He spent the next half century adding to his collection with the help of several knowledgeable book sellers and colleagues. In the introduction to the catalogue, Bedford describes how he obtained several of the important volumes in the collection. Unlike many notable medical book collections, Bedford's was assembled with a modest outlay of funds. Only two items in the collection of nearly one thousand titles cost more than one hundred pounds. Nevertheless, the collection contains numerous rare and important contributions to cardiology over the past five centuries.

The arrangement of the catalogue will be particularly appealing to physicians. The first half of the volume is arranged chronologically and includes extensive material on pulse-lore, Harvey and his followers, and 19th-century contributions to physical diagnosis and the circulatory system. The second half of the book is arranged topically with subsections devoted to angina pectoris, arterial diseases, congenital heart disease, digitalis, and other specialized cardiovascular subjects. While this arrangement might prove frustrating to the non-clinician, the excellent indices facilitate the use of this valuable catalogue by librarians and historians with little or no familiarity with the circulatory system. Furthermore, bibliographers will appreciate the complete title listings and the inclusion of pagination in most entries.

Among the most noteworthy aspects of the catalogue are the brief historical introductions to each section and the annotations accompanying many of the items. Bedford wrote the former and his notes on the significance of particular volumes and their contents were included in the latter. Bedford's own notes on the volumes were supplemented by bibliographical and additional historical notes added by Gordon Smith and Leonard Payne of the Library of the Royal College of Physicians. Included in these valuable annotations are interesting references to the provenance of some of the items, biographical details about the author, and comments placing the book in historical perspective. Moreover, there are numerous references to secondary sources for additional information.

The collection is notable for its inclusion of many works of secondary importance to cardiology which might have been overlooked by someone who did not have a knowledge of both the specialty of cardiology and the books themselves. Reflecting an awareness of the trend toward periodicals as the fundamental mode of transmission of new knowledge in the biomedical sciences, Bedford wisely chose to include journals and offprints in his collection. Furthermore, the collection includes numerous 20th-century contributions to cardiovascular medicine. This is a major shift away from the naive tendency of many collectors and libraries to ignore material published during the present century when building historical or special collections. Cardiology has matured in the present century into a field based upon a firm scientific foundation, and many of the major developments occurring in the last half century are represented in the Bedford collection. Cardiology has been transformed by the introduction of electrocardiography, the maturation of radiology, development of cardiac catheterization, and the birth of cardiac surgery. Each of these fundamental advances is represented in the Bedford catalogue. Furthermore, as a clinician, Bedford places these recent developments in historical perspective.

The book is sturdily bound and the typography is excellent. Typographical errors are almost entirely absent, and I noted only a handful of controversial or incorrect assertions in the annotations. The book is highly recommended to any physician or historian interested in the growth of clinical medicine. Librarians, bibliographers and bibliophiles will welcome it as a substantial addition to the growing literature of medical history. This volume should serve as a model for the building of a specialized collection in medicine and future medical bibliographies should be patterned after it, combining bibliographical details with valuable historical annotations in a rational format.

Reviewed by W. BRUCE FYE, M.D., M.A., Cardiographics Laboratory, Marshfield Clinic, Marshfield, Wis.

JUDY BARRETT LITOFF. *American Midwives: 1860 to the Present.* Westport, Conn.: Greenwood Publishing Co., 1978. (Contributions in Medical History, No. 1). xi + 197 pp. $15.95.

This work, an outgrowth of the author's dissertation, is a welcome addition to the growing number of books and articles on topics associated with reproduction in a cultural and social context. Litoff tells us that she first became interested in midwives after reading on the subject prior to beginning her doctoral studies. The circumstances surrounding the birth of a daughter who was delivered by an obstetrician made her even more curious.

For the most part, the author's emphasis is on the critical period during the second and third decades of the twentieth century when there was a concerted effort by the American medical profession to eliminate the midwife as a birth attendant. Litoff presents the considerable evidence that led to the almost inevitable conclusion that midwives were, indeed, not trained professionals in a culture that had become scientifically and technologically oriented. Concerned about America's comparatively high rate of infant and maternal mortality, the author laments the passing of midwives from the birth scene. European nations which chose to upgrade the midwife continue to have lower maternal and infant mortality rates than the United States.

Litoff traces the disappearance of the self-trained or semi-trained midwife in all but the poverty-stricken, predominantly Black areas of the South, and the development of a new type of childbirth attendant—the nurse-midwife. The first program to train this new category of health professional was taken under the auspices of the Maternity Center Association of New York in 1918. In the opinion of this reviewer, more emphasis should have been given to the work of the Association, which continues today as a vital force in matters associated with maternity care.

Litoff also gives a brief historical overview of the Frontier Nursing Service, founded in the early twenties by nurse Mary Breckinridge, in her home state of Kentucky. A highly successful and viable organization which focuses on rural health care, FNS has trained many nurse-midwives currently practicing in developing countries. In *American Midwives,* Litoff makes no mention of the impact of the FNS on health care delivery in other parts of the world through its graduates, nor does she mention their innovative programs in training the family nurse-practitioner.

The author devotes considerable space to the politics and professionalism of current discussion about childbirth, and she cites a number of organizations that are critical of the present national pattern of hospital-based childbirth with the obstetrician as primary birth attendant. Also, Litoff calls our attention to the fact that there has been renewed interest in laymidwifery, whose advocates would dispense with the professional services of nurse-midwives, obstetricians, or general practitioners.

However, in the United States, the pattern of health care services that has emerged is difficult to change, largely because of the development of professionalism and licensing control. In this country where midwifery has been added to nursing after a long struggle for professional acceptance and recognition, it would be difficult to provide for the training of still another group of licensed birth attendants.

In general, *American Midwives* is well organized, carefully documented, and highly readable. The bibliography is excellent and provides many suggestions for reading lists in women's studies, American studies, and the history of medicine, in that order. However, the reader wishes that Litoff, who contends that American infant mortality rates could be reduced still further were midwives and nurse-midwives more fully utilized, had addressed herself in more detail to the greater issues of economics and culture. Who is going to pay how much for the education, training and services of a nurse-midwife? The answer to this question will require that Litoff's readers supplement *American Midwives* with soundly based statistical, technical and factual data.

Reviewed by CLAIRE ELIZABETH FOX, Ph.D., Fellow of College of Physicians of Philadelphia, Doylestown, Pa.

ARMANDO FAVAZZA AND MARY OMAN (Compilers). *Anthropological and Cross-Cultural Themes in Mental Health: An Annotated Bibliography, 1925-74.* Columbia, Missouri: University of Missouri Press, 1977. 386 pp. $30.00.

Armando Favazza, a psychiatrist, and Mary Oman, an anthropologist, have collaborated to produce this fine annotated bibliography of mental health articles having cross-cultural or anthropological themes. The 3624 annotations cover the years 1925-74. The annotators make a real effort to orient the user by providing author and subject indices, and a series of tables which facilitate research by categorizing the articles by specific population groups, culture areas (Asia, American sub-cultures, Africa, Europe, Native America, Mideast, Latin and South America, Oceania and Australia), and specific themes (twenty-four in all, for example, Acculturation and Immigration; Child Rearing and Socialization; Incest, Freudian Concepts and the Oedipus complex; Mental Illness, Health and Culture; Native Medicine and Psychotherapy; Sexuality, Sex Roles and Behavior; Values, Roles and Attitudes). In separate prefaces, anthropologist Victor Barnouw and psychiatrist Eugene B. Brody discuss the historical context for interdisciplinary efforts for anthropology and psychiatry and suggest directions for research.

Favazza and Oman detail their goals and methodology in an extended introduction. Recognizing the richness of both psychiatry and anthropology and also the large areas of overlap between the two fields, they want their bibliography to encourage research in the "interface" area which they dub *anthropological psychiatry*. This sounds similar to but is not necessarily synonymous with topics such as psychiatric anthropology, cross-cultural psychiatry, and transcultural psychiatry. In making a selection of articles they set themselves several limitations, one of which was to search only non-anthropological journals (68 of them). Hence, the articles report cross-cultural behavior or use certain key concepts from anthropology, yet are mainly written by and for mental health professionals and generally do not employ theoretical or methodological orientations that are distinctively anthropological. For example, Favazza and Oman comment that their authors characteristically do not employ either a synthetic approach, or a holistic concept of culture. Nevertheless, the bibliography should be useful to anthropologists as it opens new resources to them and perhaps also indicates areas of interdisciplinary non-communication. The annotators hope that research using these data will "contribute to the renewed interest in nomothetic-idiographic synthesis in anthropology" (p. 15), and provide "quantitative data on cultural change and cultural pluralism to add to the information contained within the Human Relations Area Files" (p. 15).

There are other potentially interesting uses for the material in this bibliography, several of which will attract the attention of the historian of medicine. Favazza and Oman tabulate the numbers of articles published in each theme area in 5-year intervals, and, in their annotations, carefully retain the author's original language with all its historical and idiosyncratic flavor. Thus we quickly see that while the number of articles published in each of the "theme" areas increased over time, they did so—not surprisingly—at different rates as interest waxed and waned.

These patterns are worth researching as well as the directions and character of the language change. Or one might try to use this bibliography as a starting point for measuring the rate of flow of anthropological ideas into psychiatry. In summary, Favazza and Oman have brought a useful degree of self-consciousness to the production of this bibliography which should make it a truly valuable research tool.

Reviewed by CLAIRE M. CASSIDY, Ph.D., Department of Anthropology, University of Maryland; Research Collaborator, Smithsonian Institution, Washington, D.C.

JOHN DUFFY, (Editor). *Ventures in World Health: The Memoirs of Fred Lowe Soper.* Washington, D.C.: Pan American Health Organization, 1977. (Scientific Publication No. 355). xiv + 365 pp. Ill. $10.00

This paperback publication of 365 pages has 20 chapters, no index, and two brief appendices. One appendix of special interest to historians is the listing of contents of the Fred L. Soper Manuscript Collection, now kept in the National Library of Medicine. As the title suggests, the contents of the book are a very personal account of the professional life of one of the giants of international health. Dr. Soper's career spanned five decades, ranging from the time of Gorgas and the control of malaria and yellow fever in the Canal Zone, to the time of Dr. D. A. Henderson and the world eradication of smallpox. The book is a personal history rather than a collection of scientific papers and in no way duplicates *Building the Health Bridge,* edited by J. Austin Kerr, which contains selections from Dr. Soper's scientific papers.

There are six major areas that Dr. Soper was involved in during his career that make up the six areas of interest of the book. Of greatest importance is the account of the control of urban yellow fever in the western hemisphere, an important and exciting chapter of mankind's efforts to control pestilential disease. Short sections deal with the hookworm control programs of the Rockefeller Foundation and with the pioneering work using DDT to prevent typhus epidemics during World War II. There is a brief description of academic public health training at the Johns Hopkins School of Public Health and of field training in the southern United States. A topic of interest to students of health organizations and politics is the establishment of the Pan American Health Organization as the World Health Organization's Regional Office for the Americas. This merger is a reflection of Dr. Soper's skill as an international medical statesman. Finally, one of the most exciting sections of the book deals with the eradication of Anopheles Gambiae from Northeast Brazil.

In conclusion, I would strongly recommend this book to anyone interested in international health activities from 1920 to 1970. It could serve as a source of inspiration for young persons considering a career in international health, as Dr. Soper served as a source of inspiration for many of us.

Reviewed by TIMOTHY D. BAKER, M.D., Department of International Health, The Johns Hopkins University School of Hygiene and Public Health, Baltimore, Md.

The Osler Library. Montreal: Osler Library, McGill University, 1979. 64 pp. Ill. $10 + $1 handling and postage.

This beautiful book was prepared by the staff of the Osler Library as a visual tour with written commentary. Dr. W. W. Francis, the first librarian who served 30 years, took visitors on similar tours, showing the facilities, books, manuscripts, photographs, art work, and memorabilia of William Osler, Revere his son, and other Canadian physicians of historical interest. Francis had been chosen by Osler to catalogue in Oxford the books he had collected over the years which were to go to Canada. The *Bibliotheca Osleriana* was not completed until after Sir William and Lady Osler's death. In 1929, Francis brought the 8000 volumes to Montreal to open the Library. It has now grown to three times the original size with the transfer of all the books published before 1850 which were previously in the McGill Medical Library and with subsequent purchases funded by the University and Friends of the Osler Library. A new wing, better to house the collection and named for Francis, was opened in 1978.

The magnificent color photographs by Karen Coshof are flawlessly reproduced. The foreword is a brief biographical note on Osler with a short account of the founding of the Library. The pictorial tour follows, interspersed with stories about selected books and the people behind them. The first short section relates specifically to Osler's life and work with photographs of his desk, Grant of Arms, and a montage of personal snapshots. The second section, comprising most of the book, describes the facilities and the holdings. The bequest stated that the library was to serve for the education of students in the history and methods of science and medicine and to promote research in those subjects. Black and white illustrations show inscriptions in books and details of unusual bindings. Color photographs reproduce pages from books, diplomas, instruments and professional accessories of ancient physicians. The short bibliography lists only references in the Osler Library Newsletter. The book was designed by Robert R. Reid and was printed in Canada on heavy stock. It is paper bound. The front and back outside covers are large color photographs and the inside ones are reproductions of many colorful endpapers of books. Clearly the book is a labor of love.

Reviewed by GEORGE T. HARRELL, M.D., Vice President Emeritus for Medical Sciences, The Milton S. Hershey Medical Center, The Pennsylvania State University, Hershey, Pa.

THE BULLETIN RECENTLY RECEIVED*

John T. Alexander. *Bubonic Plague in Early Modern Russia: Public Health and Urban Disaster.* Baltimore and London: The Johns Hopkins University Press, 1980. xvii + 385 pp. Ill. $30.00.

S. Josephine Baker. *Fighting for Life.* Huntington, NY: Robert E. Krieger Publishing Co., 1980. xxiv + 272 pp. Ill. $14.50.

Stefan Bielinski and Brian C. Bliven (Compilers). *Research and Publications in New York State History, 1978.* Albany, NY: The University of the State of New York-The State Education Department-New York State Museum, 1979. xix + 306 pp. $3.00.

Stella Bingham. *Ministering Angels.* Oradell, NJ: Medical Economics Company, Books Division, 1979. 224 pp. Ill. $10.95.

Margaret Berry Blair and R. Palmer Howard. *Scalpel In a Saddlebag. The Story of a Physician in Indian Territory. Virgil Berry, M.D.* Oklahoma City: Western Heritage Books, 1979. 100 pp. Ill. $8.95.

Georges Canguilhem. *On the Normal and the Pathological.* Translated by Carolyn R. Fawcett. Dordrecht, Holland-Boston-London: D. Reidel Publishing Company, 1978. (Studies in the History of Modern Science, 3). xxv + 208 pp. Ill. $31.60 (cloth); $15.00 (paperbound).

Othmar Keel. *La Généalogie de l'Histopathologie: Une révision déchirante, Philippe Pinel, lecteur discret de J. C. Smyth (1741–1821).* Paris: Librairie Philosophique J. Vrin, 1979. ii + 146 pp.

Bruno Latour and Steve Woolgar. *Laboratory Life. The Social Construction of Scientific Facts.* Beverly Hills, CA and London: Sage Publications, 1979. 272 pp. $16.00 (cloth); $7.95 (paperbound).

Margaret M. Lock. *East Asian Medicine in Urban Japan: Varieties of Medical Experience.* Berkeley-Los Angeles-London: University of California Press, 1980. (Comparative Studies of Health Systems and Medical Care, Number 4). xiv + 311 pp. $18.50.

John B. Moses and Wilbur Cross. *Presidential Courage: The dramatic stories of presidents confronted by the combined challenges of health and political crises.* New York and London: W. W. Norton and Co., 1980. 249 pp. Ill. $11.95.

Ronald L. Numbers (Editor). *The Education of American Physicians: Historical Essays:* Berkeley-Los Angeles-London: University of California Press, 1980. 345 pp. $32.50.

Dorinda Outram (Editor). *The Letters of Georges Cuvier: A summary calendar of manuscript and printed materials preserved in Europe, the United States of*

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* The *Bulletin* reserves freedom of decision as to the publications to be included in this section. Items received, other than those assigned for review, are ultimately incorporated into the collection of the Institute of the History of Medicine

America and Australasia. Bucks, England: The British Society for the History of Science, 1979. (BSHS Monographs, 2). iv + 102 pp. $3.90.

J. Perelló. *The History of the International Association of Logopedics and Phoniatrics 1924–1976*. Barcelona: Editorial Augusta, S. A., 1976. 73 pp. Ill.

Enid Rhodes Peschel (Editor). *Medicine and Literature*. New York: Neale Watson Academic Publications, Inc., 1980. xix + 204 pp. $15.00; ($12.95 text edition).

Gloria Robinson. *A Prelude to Genetics*, Lawrence, KS: Coronado Press, Inc., 1979. xvi + 260 pp. Ill. $15.00.

W. J. Rorabaugh. *The Alcoholic Republic: An American Tradition*. New York and Oxford: Oxford University Press, 1979. xvi + 302 pp. Ill. $14.95.

John A. Shepherd. *A History of the Liverpool Medical Institution*. Liverpool: Liverpool Medical Institution, 1979. xi + 319 pp. Ill. £6.50.

John Tullock. *Chekhov: A Structuralist Study*. Totowa, NJ: Barnes and Noble Books, 1980, vii + 225 pp. $27.50.

Paul U. Unschuld. *Medizin in China. Eine Ideengeschichte*. Munich: Verlag C. H. Beck, 1980. 335 pp. DM 38.

Richard Warner. *Morality in Medicine: An Introduction to Medical Ethics*. Sherman Oaks, CA: Alfred Publishing Co., 1980. x + 142 pp. $7.95.

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DE MOTU CORDIS: Anatomical Studies on the Motion of the Heart and Blood (5th Ed., 2nd Ptg.) *by* **William Harvey.** *Translated by* **Chauncey D. Leake.** This volume presents an annotated translation from the original Latin of the Harvey treatise on the circulatory system of mammals. Its author was among the first to use the scientific methods of observation, hypothesis, deduction, and experiment in his work. A classic in medical science, this text laid the foundation for our present knowledge of cardiac function. *'78, 186 pp., 12 il., $5.75, paper*

PALEOPATHOLOGICAL DIAGNOSIS AND INTERPRETATION: Bone Diseases in Ancient Human Populations *by* **R. Ted Steinbock,** *Harvard Medical School, Boston. Foreword by* **T. Dale Stewart.** This highly acclaimed study provides a systematic approach to paleopathological analysis of the major traumatic, infectious, nutritional, metabolic, degenerative, and neoplastic diseases of bone. A review in the *Bulletin of the History of Medicine* described this text as ". . . a useful synthesis of current knowledge in paleopathology" and stated that "As such it will find an important place as a sourcebook. . . ." *'76, 440 pp., 274 il., 16 tables, $29.00*

THE PAP SMEAR: Life of George N. Papanicolaou *by* **D. Erskine Carmichael,** *Univ. of Alabama, Birmingham. Foreword by* **Charles S. Cameron.** This book provides readers with a concise record of the life of George Papanicolaou and the evolution of the pap smear from his studies with the ovulation cycles of the guinea pig. Photographs of Papanicolaou; copies of classical papers, title pages of books, and personal letters; and a complete list of his publications complement the book. *'73, 140 pp., 51 il., $10.25*

DR. W. C. RÖNTGEN (2nd Ed., 2nd Ptg.) *by* **Otto Glasser,** *Cleveland Clinic, Cleveland, Ohio.* This authoritative and highly readable biography presents a history of the first fifty years of Röntgen's life. It includes a listing of Röntgen's scientific papers, translations of three of his papers wherein he described his experiments with the unknown x-rays, a chronology of his life, an extensive bibliography, pertinent black and white photographs, and excerpts from newspapers, letters, and documents. *'72, 192 pp., 17 il., $9.75*

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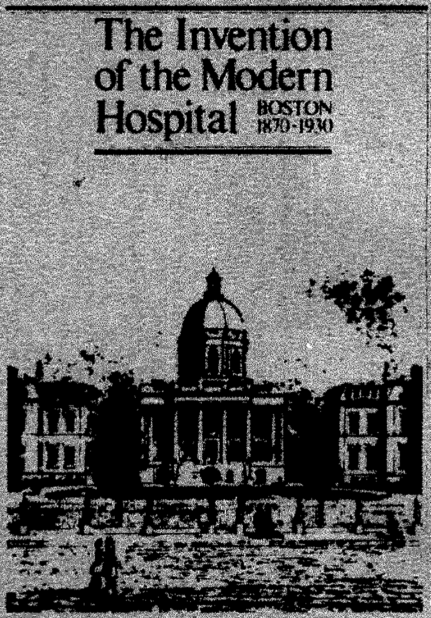

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THE AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE
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FOLK MEDICINE AND POPULAR ATTITUDES TOWARD DISEASE IN THE HIGH ALPS, 1780-1870*

JOHN SPEARS

Val de Grâce, the Pitié, the Charité, the Hôtel-Dieu, these were hospitals that saw revolutionary advances in European medicine during the first half of the nineteenth century. Laennec, Broussais, Bichat, and Louis are familiar names which represent a process of reshaping views of pathological research and medical investigation into patterns recognizable today. Yet this brilliantly lit Parisian stage with its leading characters was not all of French medicine. Beyond the city gates stretched the countryside, populous, productive and poor, devoted to traditional ways of life which admitted no possibility of medical progress.

This essay focuses on the latter setting. It attempts to clarify how the peasants of one rural French department perceived and reacted to disease during the late eighteenth and nineteenth centuries. As such, it portrays an environment which could not have been more different than the world of the Paris hospitals.

The Department of the High-Alps lies on the Italian border, in the southernmost region of the old French province of Dauphiné. Because of its difficult terrain and lack of market agriculture, it maintained its rich popular culture far into the twentieth century, thus providing extensive source material for this study. With administrative and medical sources as a core, and some comparative anthropology for interpretive purposes, it is

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* All archival sources are from the Archives Départementales des Hautes-Alpes, Gap, unless otherwise signified by the following abbreviations: AN for the Archives Nationales, Paris; AM for the Archives de l'Académie de Médecine, now being classified at the Cité Interministérielle des Archives de France, Fontainebleau. I would like to express my gratitude to M. Jean Valette, former director of the Cité Interministérielle, for his permission to use the Académie's material which has been classified to this date.

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possible to lift the veil and to peer into a realm of popular culture and practical medicine infrequently seen in medical history.

I. The peasant of the High Alps lived in a world characterized by the stark contrast between summer and winter. The advance and retreat of the snow ruled his existence, alternately bringing him light and darkness.

Summer meant a life of fresh air, of working the fields or pasturing the flocks. The peasant had to crowd a year's labor into the short months between the spring thaw and the first snows of autumn; he hardly rested when nature bathed his mountains in warmth and light. He worked alternately in the high meadows and on the valley floor, mowing, milking and harvesting. His days stretched to 18 or 19 hours, and when he slept, he often lay in the open to be ready early the next morning. At every moment, before him and behind him rose the entrancing spectacle of the southern Alps—immense mountains in the crystal air, radiant sunlight, a fierce blue sky. The ever-blowing wind mixed odors of growing crops with a cool breath from the empty regions above.

When winter came, everything changed. With the first snows and the hungry gales that whistled down the slopes, he retreated to his house for protection. He remained all winter half buried in the hillside, sustained by the warmth of his animals and the company of his family.

The world of winter was thus a small, dark, interior world. Confined by a hostile environment, he lived as though in hibernation, to the rhythm of dim light from narrow windows and the bodily needs of human and beasts. There were tools to be repaired, of course, wool to be spun or woven, and perhaps even wood sculpture or schooling to pass the time; but the joy and sparkle of winter life came at the *veillée*.

The traditional *veillée* was an assembly of neighbors in the winter evenings. It served both social and economic purposes—to enjoy human company and to conserve fuel by sharing one lamp among many. There among the sheep and goats, a hundred folktales, sayings and object lessons from the near and distant past molded an oral tradition unsurpassed in the French Alps.[1]

Each of these two worlds shaped an important aspect of popular culture in the High Alps. From the bright world of summer came the peasant's extensive understanding and acceptance of his physical environment. From the interior world of winter came the strength, durability and richness of the region's folklore. These two aspects of popular culture influenced both the peasant's attitudes toward illness and his response to it—the herbal magic of folk medicine. Together, they determined his behavior when ill, his demand for medical care, and to a certain extent, his chances for recovery.

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[1] Charles Joisten, *Contes populaires du Dauphiné*, Documents d'Ethnologie Régionale, 2 vols. (Grenoble: Allier, 1971), 1: 14-15.

The peasant's knowledge of nature reflected long familiarity with the mountains and their ever-changing climate. His agricultural and meteorological knowledge took physical shape in his horizontal division of the alpine slopes into different productive units according to altitude and in the seasonal flow of animals from stables to lowland, then to highland pastures and down again before the snows.[2] He verbalized it in the form of weather axioms, differing from locale to locale to include variations of exposure and relief, but each of surprising accuracy. For example, the picturesque saying of the Gapençais region

Quand Ceüse porte son chapeau	When Ceüse wears its hat
Berger, prend ton manteau.[3]	Shepherd, get your cloak.

accurately reflects prevailing wind and weather patterns. When the south wind carries enough humidity to condense over the crest of Ceüse, the prominent mountain in the southwest, rain usually follows.

This knowledge of his mountain homeland reflected economic necessity as well as curiosity. Humans had inhabited these mountains for centuries. At least as early as the 14th century, they had reached high levels of population density, higher, in some areas, than at the beginning of the 19th century.[4] Village shepherds had long ago explored all the alpine meadows of their area, judged the quality and quantity of forage each might provide and then exploited all but the most sterile heights. Cultivation had climbed the slopes from the fertile valley floor, using even marginal land in a form of slash and burn agriculture called *essartage*.[5] Where nothing would grow for himself or his animals, the peasant hunted *chamois* for sport and for food. So complete was his knowledge of the mountains, so complete the installation of man on the slopes, that even the highest passes became roads for communication and commerce. The pass of Says, for example, linking the Valgaudemar and the Venéon (Isère) at 3139 m. altitude, was used for common travel in the 18th century; amateur alpinists only rediscovered it in the late 19th century.[6]

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[2] For a detailed description of the human ecology of one part of the department, see Robert K. Burns, "The ecological basis of French Alpine communities in the Dauphiné," *Anthro. Quart.*, 1961, *34:* 19-35.

[3] Henri Thivot, *La Vie privée dans les Hautes-Alpes vers le milieu du 19^{e} siècle* (Grenoble: Allier, 1966), p. 88.

[4] Alfred Fierro, "Un cycle démographique: Dauphiné et Faucigny du 14^{e} au 19^{e} siècles," *Annales E.S.C.*, 1971, *26:* 959.

[5] R. Blanchard, "Déboisement et reboisement dans les Alpes françaises du sud," *Revue de Géographie Alpine*, 1944, *32:* 359-65.

Such familiarity with his physical surroundings gave the peasant a certain confidence. He knew the possibilities and limitations of his natural environment, had heard about, and in this land of enormous vistas, could often witness the development of every unfavorable accident the elements could inflict. Life held few surprises for him. His realism, as well as his resilience in the face of disaster flowed naturally from this calm fatalism.

Popular attitude toward endemic disease mirrored this fatalistic view of natural phenomena. What could be less surprising, after all, than fevers in spring or fall, diarrhea in summer, or respiratory diseases in winters? Every season brought its own afflictions as inevitably as drought in summer or snow in winter; they formed part of the environment, dangerous in the same way as avalanches, and only a little more deadly.

The fevers that came and went monotonously were so unremarkable that they did not even generate a large variety of common remedies. Van Gennep, the great folklorist, could find few herbal remedies for fevers in the extraordinarily rich popular pharmacopoeia of the region. Genepi (*Achillea moschata*), a cure-all, was the only one commonly mentioned. This observation, as well as the fact that only one chapel in the area, St. Guillaume of Eygliers, served as a refuge for fever sufferers, led him to conclude that the country was generally free from fevers.[7] In fact, fevers occurred quite commonly. This lack of folk remedies reflected resigned acceptance on the part of the peasant rather than freedom from disease.

Dr. Charmeil, military surgeon at the fort of Mont Dauphin in the department, expressed this fatalism in humoral terms when he wrote in the 1780s:

> Their temperament partakes of the bilious and phlegmatic; they are indolent and cold, quite unemotional at the loss of their relatives and very hard amongst themselves; the husband watches his wife suffer, and the wife her husband with great indifference. Even death does not frighten them. . .[8]

Such attitudes filled medical personnel with uncomprehending disdain, especially those most highly educated and most divorced from the peasant's world. Dr. Farnaud, one of the most conscientious and erudite doctors in the department during the first part of the century, called the inhabitants of the isolated commune of Champcella "the Hottentots of the Alps," because they had not called for medical assistance during a local epidemic in 1819. "Without terror as without courage, they seem rather to be in a sort of stupid resignation, from which they emerge from time to time to joke in their own fashion."[9] Undoubtedly tired and frustrated from his long journey up to the commune, Farnaud could not appreciate that humor in the face of death required a real courage. For the peasant, that humor meant continuing equilibrium in the face of catastrophe.

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[6] Numa Broc, *Les Montagnes vues par les géographes et les naturalistes de langue francaise au 18e siècle* (Paris· Bibliothèque Nationale, 1969), pp. 243-4.

[7] Arnold Van Gennep, *Le Folklore des Hautes-Alpes*, 2 vols., (Paris: G. P. Maisonneuve, 1946, 1948), 2: 112.

[8] M. Charmeil, "Mémoire sur la topographie médicale de la ville de Mont Dauphin et de ses environs," *Bull. Soc. d'Etudes des Hautes-Alpes*, 1964, 140-160.

The most obvious consequence of such fatalism was the peasant's deep-rooted reluctance to call the doctor. Disease came and went without the intervention, or even the awareness, of the local medical personnel. The curé of Montmaur, for example, wrote to the Prefect in 1840 to observe that no doctor had been called to treat a fever, even though it had afflicted the commune for several months. "The relatives of the sick, whether from negligence or lack of resources, have not wanted to call a doctor, despite my pressing recommendations."[10] In 1880, Dr. Arnaud noted that the official statistics on disease incidence substantially underestimated reality; they only represented the cases known to the medical doctors and "cannot include those remaining unknown by every one, or those known only to a midwife, or a priest, or any other improvised doctor."[11]

Lack of resources, distrust of doctors, and the difficulty of communications must have contributed to this reluctance to seek professional medical care. We can see the importance of peasant fatalism more clearly if we turn to a regional folktale about doctors and disease called "La Mort Parrain" (Death the Godfather).[12] A poor man who could find no one to be the godfather of his last born son, his thirteenth child, encountered Death on the road. Death promised to be the child's godfather on the condition that the child would be raised to be a doctor. Left without much choice, the poor man consented. In due course, the child became a famous physician, dazzling the world with his infallible ability to predict the recovery or demise of any patient thanks to the help of his godfather. The day came, however, when he tried to go beyond prediction and trick his godfather into sparing a doomed man. Such *hubris* brought his downfall; even for a godchild, such transgression of fate could not be tolerated.

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[9] 139M-22. Dr. Jean-Louis Farnaud was born in Gap in 1772 and received his medical degree from the University of Montpellier in 1806. Like so many of the physicians quoted in this study, he led a useful life totally concerned with a general practice within the department. See the Master List of Department Medical Personnel of 1864 in 133M. For a recent and excellent article on peasant-doctor interactions in late 18th century France, see Harvey Mitchell, "Rationality and control in French eighteenth-century medical views of the peasantry," *Comp. Stud Soc. and Hist.*, 1979, *21.* 82-112.

[10] 139M-10.

[11] 139M-26.

[12] Joisten, *Contes*, 1: 167-8.

The world view of this folktale excludes the possibility of medical control over pathological processes. Man cannot change fate. As the peasants of the Remollon area told one physician in the late 1850s: "The doctor is not God. If his hour has come, the sick person must die; if not, he will recover without a doctor."[13]

If ineluctable fate ruled the destinies of adults, how much more it ruled in the cases of children and old people! If medical intervention was often dismissed for adults, it was barely even considered for these more fragile members of the community. As late as 1905, a member of the department health council estimated that less than 10% of children under the age of two years, or of people over seventy, ever received professional medical care, even in towns with a resident physician.[14] Economic motives must have played a part here. The death of an adult, productive member of a family threatened the existence of the whole group, whereas children and the aged were less essential. The poor chances of these groups in the struggle for existence must also have contributed to reluctance to seek medical attention. To quote Dr. Michniewski, reflecting on his practice in the Durance Valley in the 1840s, "It is generally believed that the doctor can do nothing for a child, the poor innocents are left to suffer and die without medical aid in the deep-rooted conviction that they are happier to go directly to heaven."[15] The peasants' hierarchy of social valuation sounded through the countryside each time the mourning bell tolled—four times for an adult male, thrice for an adult woman, but only once for a child.[16]

Death was a common occurrence among the young and old; the peasant accepted that fact calmly. Even deaths of adults had to be accepted fatalistically—unless several died at the same time, of the same disease. In the face of a threatening epidemic, resignation dissolved into an overwhelming desire for self-preservation.

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[13] 138M-3.

[14] *Procès-Verbaux des séances du conseil départementale d'hygiène et des commissions sanitaires de Gap, Serres, Embrun et Briançon* (Gap, 1905), p. 27.

[15] 138M-3.

[16] Van Gennep, *Folklore*, 1: 171-4.

The most complete description of this phenomenon came from Dr. Antoine Isidore Manuel in his department health report of 1863.[17]

> When several individuals of the same village or the same hamlet have been attacked by a sickness which appears with about the same characteristics, a sort of terror-panic takes hold of the neighbors' minds, and keeps them away from the domicile of those to whom their assistance would be most valuable. As soon as one pronounces the name of the malign, ataxic fever, typhoid, etc., it seems that at the very instant the instinct of self-preservation is awakened in them with a sort of febrile exaggeration which no longer permits them to approach the place where the sick are lying, no matter what might be the ties which unite them, or whatever their desire to make themselves useful.[18]

Terror produced by the expectation of high mortality enforced an immediate quarantine, whether within the village itself, or between neighboring villages.

This pattern repeated itself with depressing regularity whenever a grave fever broke out (or was merely said to have broken out) in a rural community. The alarm of an epidemic in the commune of Orcières in 1809 spread quickly to neighboring hamlets, which soon refused any communication with the stricken area. The same situation occurred in the Valgaudemar in the fall of 1828. Hearing the rumor that seven people had died of a contagious disease in the village of St. Firmin, leaders of the neighboring villages took immediate action. The curé of St. Maurice spoke from the pulpit to prohibit any communication with the unfortunate commune; the mayor of Aspres-les-Corps made an official announcement to the same effect.[19] Even the mayor of Guillaume-Peyrouse, a village at the far end of the valley from the site of the outbreak, took action on the matter. When he met two department tax assessors on the road, he warned them in typically exaggerated fashion: "Messieurs, if you value your life, go no farther, for the plague is at St. Firmin."[20] There was no plague, or course, merely an outbreak of what was probably typhoid fever, but the peasant did not care for nosology. He only knew that the diseased area should be avoided at all costs. As a result, the local lieutenant of gendarmes reported that the normal Sunday visitors to St. Firmin ceased appearing shortly after the disease broke out. If something is not done to stop the exaggerated rumors, he warned, the village will be completely isolated.[21]

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[17] Dr. Antoine Isidore Manuel was born in the Basses-Alpes in 1807 and graduated in medicine from the University of Montpellier in 1819. Unlike Dr. Farnaud and so many of his peers, he took an active interest in broader questions of medical practice in his day, and published a work in 1861 entitled *Essai sur l'organisation du service médical en France* which evinced an intelligent and industrious mind. His unpublished manuscripts in the Archives Départementales form a rich source on provincial medical problems under the Second Empire.

[18] 139M-1

[19] 139M-11.

[20] *Ibid.*

When the epidemic seemed especially grave, this fearful avoidance of the sick even disrupted the traditions of mutual aid so fundamental to the village community.

> Unfortunately, there exists in the countryside such indifference, such reprehensible negligence, that the sick do not receive any care. Happy are the husband and wife who can care for each other, and provide support, their forces permitting, almost to the end.[22]

Dr. Villan told of seeing a young mother of four children suffering from what he diagnosed as typhoid fever during the epidemic at Vars in 1840. She had received visits from only three people since the beginning of her illness—the curé, the mayor and Villan himself. In Freissinières in 1862 "no one dared enter an infected house to console the family or to perform the customary services for the corpse of the deceased."[23]

This lack of nursing care reached such proportions that the administration occasionally had to call on local religious orders to remedy the situation, as it did during the 1854 cholera epidemic, and during the severe typhoid outbreaks at Réallon and Freissinières in 1862.[24]

If the timing of the epidemic corresponded to the crucial periods of agricultural labor—the sowing and harvesting in spring and fall—the peasant's despair became even deeper. If the grain could not be brought in before the first snows, the temporary misery of disease could lead to the lingering death of famine. Thus, the curé of Freissinières advised the sub-prefect of Embrun that nothing could better restore morale in his stricken parish than a promise that the harvest would be assured. That same year, the sub-prefect himself battled the peasants' fear when he tried to find agricultural workers to bring in the harvest at Réallon. With threats and promises, he eventually succeeded.[25]

The extensive disruptions that epidemics brought to the village had a devastating impact on the peasant's morale. The combined effects of illness, the death of loved ones, lack of nursing care, worries about the food supply, and the disorienting effects of a breakdown in daily routine intensified the damage of the pathological process, and probably increased mortality. One local epidemic in the Treilles quarter of the commune of Savines in 1879 offers a particularly good description of this phenomenon. The 22-year-old daughter of one family apparently contracted a fever, diagnosed as typhoid, while at work as a domestic. She herself recovered, but only after two months of extremely slow convalescence; her 14-year-old sister died on the twelfth day of the illness. "The father died a few days after his daughter," reported Dr. Arnaud.

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[21] *Ibid.*

[22] 139M-10.

[23] *Ibid.*

[24] 139M-1; 139M-10.

[25] 139M-10.

> I can only attribute his death to the extreme depression he suffered, and to the lack of food and rest. He died without having requested care, without having complained of any discomfort, three days after a medical visit during which he requested nothing for himself and during which I observed in him nothing except depression.[26]

Such social disintegration in the face of epidemic disease was well known in Europe from ancient times through the nineteenth century. The most famous examples come from the great urban plagues of the 14th, 17th and 18th centuries.[27] Less famous, but more comparable to the situation in the High Alps, are the examples of panic noted by Lebrun in rural Anjou in the late 18th century. There, the disintegration of traditional behavior patterns left the dead unburied, the villages deserted and the fields abandoned. In 1779, for example, a Dr. Vétillart of Le Mans noted that in a rural epidemic "the fear of the illness drives away neighbors and relatives. . ." He insisted that the death bell not be tolled, since its constant lugubrious clamor would "disturb the sick even in their beds, bringing terror to their souls and giving them a death blow."[28]

Epidemic-induced panic reached its peak in the High Alps during the cholera epidemics of 1835 and 1854. That dreaded disease could kill with terrifying swiftness, taking its victims from apparent health to the grave in less than twenty-four hours. Even the irregular progress of the disease seemed perfectly designed to heighten suspense, driving the normally stolid peasants of the region into an irrational panic.

Rosans, an important market town in the southwestern corner of the department, suffered first from the cholera of 1835. Neighboring villages hastily broke off all contact with the stricken town. Inside Rosans, "dis-may was universal, the most proud courage beaten down";[29] normal activities ceased, and even the local physicians found an excuse to be somewhere else. Order and morale were only restored with the abatement of the scourge. Meanwhile, a stream of fleeing Provençaux imported the disease to Gap. The police worried about "wild rumors," and popular opinion soon accused the medical profession of having spread the disease to serve their own interests. Although the Gapençais did not threaten to throw their doctors in the local stream the way Parisians did, they actually destroyed a city reservoir suspected of having been poisoned.[30] All told, the cholera probably caused the greatest popular uproar since the Great Fear had swept up from Provence in 1789.

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[26] 138M-26, comment on an epidemic report by Dr. Arnaud, 1881.

[27] See Charles Carrière, M. Courdurié and F. Rebuffat, *Marseille, ville morte. la peste de 1720* (Marseille: Carçon, 1968); C. G. Coulton, *The Black Death* (London. E. Benn, 1929); August Hirsch, *Handbook of Geographical and Historical Pathology*, 3 vols. (London: 1883).

[28] François Lebrun, *Les Hommes et la mort en Anjou* (Paris: Flammarion, 1975), pp. 312-317.

The most impressive indication of the gravity of this climate of terror may be found in the psychosomatic reactions of the populace. In describing the 1854 cholera epidemic in a report submitted to the Academy of Medicine, Dr. Michel noted three prevalent forms of the disease. The first two forms correspond to the pathological symptoms we still recognize as cholera; the third was more nebulous. This latter included a variety of cramps, nervous disorders and feelings of suffocation which most often occurred during the night. The etiology involved fear and overstimulation of the mental faculties. Treatment consisted entirely of a sympathetic attitude and encouraging words.[31] Evidently the atmosphere of panic could create very real physical complaints.

The gulf between terror-panic and calm resignation was a wide one, but it could be crossed in a moment, depending on the peasant's evaluation of the familiarity of the disease and his fears of its potential effects. Given the dispersed settlement pattern in most communes of the department, as well as the difficulty of communication, these evaluations were based on the scantiest, most unreliable information. Whoever happened to pass by became not only a news carrier, but also an instant diagnostician and public health authority; peddlers, beggars, a neighbor returning from market, a shepherd with his flock, all contributed to the flow of rumor which could traverse mountains in surprisingly little time. Through the rich medium of local patois, reinforced by an occasional technical word in French, and accompanied by well-chosen gestures, the voyager spread the word of sickness and death in exaggerated tones. Informal quarantine could be created in a matter of hours, to be reinforced from the pulpit or the public square the next day. Such extreme reactions undoubtedly helped to restrict the spread of infectious disease from village to village, and thus played a functional role in decreasing mortality; the effect on the economy and administrative efficiency must have been less desirable, however, for the government instructed its functionaries to calm public opinion whenever possible in such situations.[32]

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[29] 139M-3.

[30] *Ibid.* See also, René Baehrel, "La haine de classes en temps d'épidémie," *Annales: E S.C.*, 1952, 7. 353-5.

[31] Dr. F. Michel, "Rapport sur l'épidémie de choléra morbus . . ." in AM, unclassified ms.

If disease provided a topic of popular concern in epidemic outbreaks, everyday maladies provoked only silence. Infectious diseases, when not shared in the reassuring anonymity of community-wide suffering, entered into that class of personal misfortunes which were hidden from others. Dr. Mas gave the best account of this attitude when he explained why he did not like to visit the smaller communes of his medical circuit. "On my arrival in a commune," he wrote in 1863, "I go to the mayor's house, when he inhabits the main village, or to the curé's. I cannot stay at the inn because the people don't like others to know they are sick, and even less that they know their maladies."[33] Several times villagers even greeted him on the road outside town, begging him not to tell other members of the community that they were sick.[34]

This sentiment seems to form only one aspect of a larger set of peasant attitudes determining relations within a human community perceived as essentially hostile. The peasant felt that he must protect himself from other people, from those who were in competition with him, and from those who would miss no opportunity to take the upper hand or to portray him in a bad light. He must be wary of his neighbors, and especially of the government, that most threatening of opponents. Secrecy afforded the best protection, since knowledge allowed others to gain an advantage. The less others knew about his fortune or misfortune, deficiencies or illnesses, the better off he would be.

Laurence Wylie has eloquently described this sentiment in the context of a Provençal village of the twentieth century, in culture and milieu little different from villages of the High Alps a century earlier. He later generalized this fear of "les autres" as a fundamental aspect of French national character.[35] In the High Alps in the nineteenth century, suspicion of others appeared in exaggerated form among those who felt most precariously balanced on the edge of misery, terrified of a fall into the ranks of paupers and beggars. Everything an independent peasant cultivator could do to guard his status assumed a crucial importance for him—including preserving the secrecy of his personal health.

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[32] On the replacement of patois by French, see the sensitive treatment in Eugen Weber, *Peasants into Frenchmen* (Stanford, California: Stanford University Press, 1976), chap. 6; 139M-8.

[33] 138M-3.

[34] *Ibid.*

[35] Laurence Wylie, *Village in the Vaucluse*, 2nd ed. (Cambridge: Harvard University Press, 1972), chaps. 9 and 10.

This same desire for secrecy combined with the peasant's habitual fatalism to hide much disease from public view. Throughout the nineteenth century and even into the twentieth, the department administration exhibited an alarming lack of knowledge about the state of public health in the area. When the commune of Barret-le-Bas requested a sanitary water supply system just before the First World War, it provoked some controversy over the actual need for such an expensive system. As late as 1923, the prefect, on the advice of the Department Sanitation Council, certified that no known cases of water-borne diseases had occurred there within the last three years. Both an engineer of the *Ponts-et-Chausées* and the mayor of the commune contradicted him, however. The mayor even described the commune as a "focus of contagion" for typhoid fever, noting

> In almost all the cases, the inhabitants make no declaration. On the contrary, they are quite content if no one knows anything, as though it were a shameful disease.[36]

On health matters, the countryside was a land of secrecy.

Given this desire for secrecy, it is not surprising that the peasant tried to cure himself as much as possible. Like so many peasants in today's developing world, he first exhausted the skills and home remedies of his family before seeking out the local "bonnes femmes" or unofficial village savants. The hospital was almost unthinkable. As Justin Barrachin, High Alps novelist and student of local folklore noted in the 1930s,

> The hospital was, for our grandparents, the resting place of unfortunate mendicants, the poor who had been abandoned by all. It was necessarily the antechamber of the cemetery. To be transported there was in their eyes almost social stigma: in any case, shameful.[37]

Everything he could do for himself, the peasant would do first, before calling for help.

The *régime chaud*—treating grave illnesses by forcing the patient to sweat profusely—seems to have been popular home therapy throughout France in the eighteenth and nineteenth centuries.[38] The High Alps proved no exception. When peasants finally had to abandon their fields from weakness and pain, they were put to bed under a mountain of covers. Family members "take care to burden them heavily with clothing, to gorge them with hot drinks, including the most stimulating substances, such as wine flavored with cinnamon . . ." as one physician observed.[39] In the eyes of the local medical profession, such treatment could only be regarded as deleterious.

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[36] AN F-10 2230.

[37] Justin Barranchin, *La Montagne m'a dit*, 3rd ed. (Editions Cahiers de l'Alpe, n.d.), p. 39.

[38] See, for example, J. P. Goubert, *Malades et médecins en Bretagne, 1770-1790* (Paris· Klincksieck, 1974), pp. 229-32.

Not all self-treatment was so non-specific as the *régime chaud,* however. Several scattered observations from the 1850s and 60s indicate that the peasants were becoming more sophisticated as their contact with professional medical personnel increased. Dr. Ayasse, speaking of Barcillonette in the south of the department, observed that the people had seen doctors treat fevers so often that they recognized the most common remedies then in use.[40] They were applying these remedies themselves and doing without professional aid. Dr. Mas remarked the same phenomenon in the Orpierre region. Abbé Nottey, the parish priest of La Chapelle-en-Valgaudemar (at the opposite end of the department from Orpierre) noted that the sick had made it a law between themselves to visit neighbors and relatives in order to apply the councils of their local physician, Dr. Oeuf. "I am the only one to be able to tell you this," he added conspiratorially.[41]

Old women in particular wasted few opportunities to improve their medical skills. Thus, the doctor's village consultation often took the form of an inadvertent lecture on diagnosis and therapy. As soon as the doctor leaves, the old women of the village crowd around the sickbed, reported Dr. Manuel.[42] They would inquire into the smallest detail of his visit, not only his words, but his tone of voice, gestures, manner of speaking, how he touched and explored the patient's body. Nothing escaped their attention. They were the ones who administered the doctor's prescriptions, although not always correctly. This explains how the peasant became more adept at imitating the doctor as the century progressed. Denying the physician's legal right to a monopoly of information, he simply borrowed what he felt he needed to protect his independence and the privacy of his personal life.

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[39] J. Nicolas, *Essai sur la topographie physique et médicale du Champsaur* (Montpellier: Jean Martel, 1924), p. 40.

[40] 139M-10.

[41] *Ibid.*

[42] Manuel, *Essai sur l'organisation,* pp. 128-9.

II. In the event the secret remedies, home treatment, or *régime chaud* failed, the peasant turned to a local healer—some member of the village with a reputation for curing disease. He thus admitted the existence of illness and allowed a first infringement on his privacy. This infringement was not a grave one, however. The healer lived nearby, belonged to the same cultural, and probably even the same kinship group, shared the same interests and spoke the same patois as the patient. He was a familiar, sympathetic figure. Consulting the local healer did not compare at all with the worrisome prospect of dealing with the most foreign of "others"—the doctor.

According to Dr. Mas, the peasants first turned to their curé, "thinking him a man who knows all and is capable of all."[43] Without doubt, the priest held a position of power and influence. His ties to Church and administration, his position as intermediary with the supernatural, as well as his informal advantages of familiarity with peasant culture and society, made him an obvious choice when disease threatened.

Peasants throughout France often attributed a gift of healing to their priest. In the High Alps, priests were treating patients with the aid of herbal medicines at least as early as the 17th century, despite the Church's formal opposition.[44] Given the peasants' attitudes toward illness, combined with their reluctance to call for professional medical care, there must have been a great demand for informal care, a demand the priest was ideally positioned to satisfy. His preoccupation with charitable works took him to the bedside of the sick in any case, his rural origins assured him a familiarity with folk medicine. Some priests in the department involved themselves in botany with an impassioned interest, collecting and cataloguing a wide range of alpine flora in their spare time. Dominique Villars, the famous physician and botanist of the late 18th and early 19th century, owed his interest in botany to the curé of LeNoyer, his home village in the Champsaur.[45] These botanical studies reinforced and enriched the priest's familiarity with herbal remedies. Furthermore, the curé passed as a man with supernatural knowledge, the touch of magic so essential for the successful practice of folk medicine. For all these rea-

[43] 138M-1.

[44] Marcelle Bouteiller, *La Médecine populaire d'hier et d'aujourd'hui* (Paris: Editions G. P. Maisonneuve et LaRose, 1966), pp. 26-32; Wayland Hand, "The folk-healer: calling and endowment," *J Hist. Med* , 1971, *24.* 263; Robert Heller, "Priest-doctors as a rural health service in the Age of the Enlightenment," *Med. Hist.*, 1976, *4.* 378-9, Timothy Tackett, *Priest and Parish in Eighteenth Century France* (Princeton: Princeton University Press, 1977), pp. 161-2.

[45] Alain Dejarnac, *Vie et carrière médicale du dauphinois Dominique Villars (1745-1813)*, (M.D. thesis, U. Grenoble, 1969), p. 12.

sons, the priest was a natural choice of peasants in search of local medical care; he could not often have refused their entreaties.

One curé in the 19th century, M. Arbaud of Sigoyer, gained an almost legendary reputation for his skill as a healer. The extent of his powers, and thus the potential of all curés, is illustrated by the following tale. Arbaud had been forbidden by the bishop to practice medicine, but he ignored the prohibition. The doctors of Gap, jealous of his success, complained to the prefect, who sent some soldiers to arrest him for illegal practice of medicine. When the soldiers arrived, however, Arbaud amazed them with a demonstration of his powers. Somehow aware that one of the soldiers suffered from worms, the priest hung him upside down over a pot of warm milk. One by one, the worms crawled out of his mouth and he was cured. The soldiers were so amazed that they refused to complete their mission. The prefect could only relent, and the priest remained free.[46]

Although the details may be fanciful, this story accurately reflects the popular image of the priest as healer, as well as his conflicts with the administration. Whenever the priest prescribed a remedy, he committed the crime of illegal practice of medicine since he had neither license nor diploma. The Law of 19 Ventôse, Year XI was clear on that point.[47] No one ever complained, of course, except the professional physicians and health officers. What the peasant saw as charity, they saw as competition which could potentially damage their prestige. When such competition became especially threatening, they would complain to the administration. It is through this complaint process that we obtain some idea of the usually covert medical activity of priests and pastors in the High Alps.

Beside Arbaud of Sigoyer, we hear of the priest Brun, of Bersac, who incurred the wrath of Dr. Oeuf in 1805. Brun apparently practiced a form of medical care mixed with magic, not only in his own parish, but also across the Durance in Mison, Basses-Alps (present department of the Alpes de Haute Provence).[48] In 1838, two priests, of Batie-Neuve and Esparron, were named by the medical jury as practicing illegally, and in the 1860s Durand, the former Protestant pastor of Freissinières, was accused of visiting the sick in four communes in the upper Durance valley. Durand's reputation as a healer had suffered no setbacks in these visits; the mayors of all four communes attested in writing to his success.[49]

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[46] Thivot, *Privée*, p. 330.

[47] René Roland, *Les Médecins et la loi du 19 ventôse, An XI* (Paris, 1883), chap. 1.

[48] 141M.

[49] 136M-2.

As legal medical personnel became more numerous in the countryside under the Second Empire, complaints of the illegal medical activities of priests increased. Catelan, a health officer from St. Bonnet, complained of four priests in 1866—those of St. Julien, Chaillol, Aubessagne and St. Eusèbe. He claimed that "everyone" practiced in his area, but the worst offenders were the priests, several of whom practiced "just as openly as we doctors do."[50]

> . . . The good people of our countryside are led to believe without the possibility of disillusionment that the curé accomplishes more, even in medicine, than the most learned doctor. . . . The moral influence of the curé is very important here, he would even be jealous if someone went to the doctor.[51]

Jealousy would not have been an altogether new sentiment to find among priests as the official medical profession penetrated the countryside in greater numbers under the Second Empire. J. P. Goubert asserts that the country priests of Brittany in the late eighteenth century resented the intrusion of the administration's first doctors of epidemics; they feared an erosion of their leadership, local influence, ability to intercede with the central government, and even their status as experts on local conditions.[52] The clergy of the High Alps must have experienced similar sentiments, although because of the poor communications and rugged terrain of the region, this development came later than in Brittany. By 1870, the process of reduction of the priest's authority in the High Alps was still not far advanced.

On a practical level, the department administration could do little during this period to prevent the clergy from practicing medicine. The warnings of a distant and often distrusted administration could do little to counteract the informal pressures which daily life in the village exerted. Nor did the administration want to create difficulties for itself by interfering with the church's servants in the parish. When Prefect Scipion Morgue, pressured by the continuing complaints of the department's doctors, wrote to the Bishop of Gap in 1838, he used only gentle tones. "Without doubt," he wrote,

> Messieurs the curés and priests would risk neither the slightest blame, nor the least responsibility if they restricted themselves to urgently needed advice and even to the first care which the symptoms of a disease require. . . . But here it is a

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[50] 138M-3.

[51] *Ibid.*

[52] Goubert, *Malades*, pp. 248-9.

> question of more grave evidence since it states the abuse of *the practice of medicine* in imitation of licensed physicians.[53]

The reverend Monsignor, who no doubt enjoyed more moral authority and popular support than the prefect, replied calmly. He agreed that priests truly practicing medicine would be overstepping their bounds, of course, but doubted that his priests had been doing so. He promised to instruct the two priests in question, MM. Argence and Eymard, to cease and desist practicing medicine "*in imitation of licensed physicians*" (his underlining). He went on to observe, however,

> Without doubt, the law forbids MM. the curés to practice medicine strictly defined, but their charity sometimes makes them surpass the bounds of mere first aid in that they continue to give some advice to the sick and to survey the administration of a few harmless potions. How could it be otherwise, M. le Préfet, in the middle of a population as poor as the one in this department, when, in most areas, the doctor is only called in the final extremity, and when often he is not called at all?"[54]

The bishop was right, of course. A conscientious priest would be driven to practice medicine as much by charitable impulses, as by the desire to increase his status or exercise his botanical knowledge. The countryside was a medical vacuum into which the priest was naturally drawn. Undoubtedly relieved at this compliance in form, the prefect let the matter rest there, and priests continued to practice medicine to 1870 and beyond.

Next to the priest among the local folk healers stood the midwife. Midwives in the High Alps varied greatly in status and knowledge, from the "matron," a woman of extremely modest skills and reputation who only practiced in her home village or commune, to midwives of regional fame, who were called from village to village to help women in delivery. Among the latter, a few had been licensed by the administration, after having studied and passed an examination in the art of midwifery.[55] The vast majority practiced illegally.

The local midwife, or "matron" as she was often called by the medical doctors of the department, was usually an old woman who had borne numerous children. She belonged to the world of the peasant village even more than the priest, by right of her birth and long life there. She knew her neighbors by name, as well as their parents and grandparents, offering them her modest talents in exchange for small gifts or services. Frequently a widow, and often destitute, she knew at first hand the rigors of peasant life as well as her neighbors and clients.

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[53] 141M.

[54] *Ibid.*

[55] On licensing of midwives, see John Spears, "Peasants, Doctors and Typhoid Fever" (Ph.D. dissertation, Johns Hopkins University, 1978), chap. 3.

The matron shared the everyday rituals of peasant life to a greater extent than did the priest, whose sex and institutional status always set him somewhat apart. At the birth of new members of the community, it was she who organized the household, comforted the mother and delivered the child. Her role went beyond that of medical assistance and moral support. She played an important part in some of the most important ceremonies of birth, including the *relevaille* (when the new mother reentered public life) and the first bathing and dressing of the infant.[56]

Every village either had its own matron or shared one with a neighboring community. Most resembled the description of Jeanne Boniface of Rosans, a widow with four children in 1821. She had received instruction from other midwives in the art of delivery, but was very poor despite her respected knowledge.[57] Rose Blain appears in the census lists of Aspres-les-Veynes in 1866 as a widow, aged 68, the head of a household including her unmarried daughter.[58]

Midwives who apprenticed themselves to an older woman generally started young, and often established themselves in the larger towns where a suitable clientele could be found. Such was the case of Marianne Fié, unlicensed but "young and robust" . . . ideally suited, according to the mayor of Ventavon, to replace the old midwife of the commune, who had recently retired.[59] Occasionally these young midwives obtained legal status by passing an examination before the department's official licensing organ, the Medical Jury. The procedure was not popular. Travel costs were burdensome, and a certificate was of little value in the countryside, especially since the administration tolerated illegal midwives with even more grace than it did clergymen folk-healers.

As was the case with the priests, the only people who objected to unlicensed midwives were those who stood to lose in prestige or profit from their competition. In 1855, for example, a young, licensed midwife tried to establish herself in the commune of St. Firmin. Her task soon proved quite difficult because of the invincible competition of an unlicensed midwife by the name of Catherine Richon, already a veteran of 40 years service. When the younger woman complained to the prefect about this situation, the mayor of St. Firmin defended the venerable midwife. Richon, he said,

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[56] Van Gennep, *Folklore*, 1: chap. 2, also his *Manuel du folklore français contemporaine*, 2 vols. (Paris: Auguste Picard, 1943), 1: 138.

[57] 137M-1.

[58] See the Archives Départementales, *Série Statistique*, 166.

[59] *Ibid.*

> devotes herself with a zeal and an admirable disinterest to the care of the sick, whether they are rich or poor, and at all hours and in all seasons. There is not one family in the countryside which is not devoted to her for important services.[60]

The devotion of the population had more than Richon's excellent professional reputation for its basis, though.

> It's a general cry among the women that they loathe the idea of conferring themselves to a young girl, however learned, but without experience. They would prefer, they say, to expose themselves to misfortunes rather than call on a person other than the one who knows their miseries and their needs.[61]

We could not ask for a clearer statement of the value of the traditional midwife in the eyes of the peasants. Only she can satisfy their psychological and emotional as well as physiological needs. The new one cannot. Only she can comfort them in their own dialect, guarantee their secrecy from "les autres," and bring a human consolation more valuable, at least in cases of normal delivery, than the meager therapeutic advantages of even the best trained nineteenth-century medical professional.

Midwives occasionally surpassed the bounds of midwifery, and practiced folk medicine. As with the priests, their status in the village community, and their presence when relief was most needed, must have tempted them to do all they could to heal. Catherine Richon supplied the functions "both of doctor and midwife" for the commune of St. Firmin.[62] Françoise Colomb, a midwife in Gap, came under suspicion of practicing medicine as well; "Who knows whether she doesn't employ the exorcism so natural to such empirics?" asked Commissioner of Police Guillet, in his letter to the prefect in 1833. Convicted once, she was still practicing illegally five years later, undoubtedly because she enjoyed the confidence and patronage of the people. She has an unblemished reputation for her knowledge and skill, the mayor declared, and especially for her commitment to the poor of the town. "What would the profession of midwife be," she, herself demanded, "if she limited herself to *delivery pure and simple,* without concerning herself with the consequences, so often dangerous and sometimes lethal . . .?"[63] Yet this popularity did not influence the administrators and doctors of the department. On the contrary, educated opinion throughout the nineteenth century condemned rural midwives in the strongest possible language.

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[60] 136M-2.

[61] *Ibid.*

[62] 141M.

The first prefect of the department, Bonnaire, included a scathing indictment of midwives in his *Mémoire Statistique* of 1799. They are "almost all ignorant of the first elements of the art they claim to practice, dedicated to an unrefined routine which even practice cannot enlighten, bringing to these extremely delicate operations a stubbornness equal to their ignorance . . ."[64] The results, according to him, were often deadly for both mother and child. When the prefect asked for an evaluation of the abilities of department midwives in 1836, the medical profession replied unanimously that licensed midwives alone merited a good deal of respect. Unlicensed midwives came in for sharp criticism, as "rural matrons, without any other title than that of the reprobation they merit for the evil they produce daily in the countryside,"[65] Over 50 years later, Dr. Guillaume of Guillestre, describing one of the least progressive areas of the department, still complained of the unfortunate results of deliveries effected by unlicensed local matrons—puerperal infection from the numerous manipulations was the most grave.[66]

A number of rural midwives deserved such censure, if we can judge by examples of popular obstetric horrors which have come down to us. In a letter of August 3, 1836, the captain of the Chorges gendarmes' brigade reported that in late July, a woman only seven months pregnant began labor. She called in a neighbor, who was to act as midwife for the delivery, but whose knowledge of that profession fell short of even the most modest norms. Believing the mother dead, the neighbor cut open her abdomen with a knife to try to save the baby. The mother was not, in fact, dead, but soon succumbed to the knife wounds; the baby died as well. A similar story with a happier ending was recorded in a letter from the licensed midwife Marie Michel to the prefect in 1837. Mme. Michel had been called in when the delivery of Jurette Verqueil of Trescléoux had already lasted seven days. During that time, the local midwife of Trescléoux thought she had seen the infant's head emerging. Certain that the water bag was impeding delivery, she took a knife and ripped open the fleshy protuberance she thought was the water bag. Unfortunately, it turned out to be the infant's abdomen—a ventral presentation. Mme. Michel succeeded in turning the baby, aided delivery, and sewed up the wound. Though the details of this operation seem confused, the pride in a final favorable result can not be mistaken: "Both mother and child now enjoy perfect health," Michel affirmed.[67]

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[63] *Ibid.*

[64] AN F20-158, the *Mémoire Statistique* of Prefect Bonnaire, An XI.

[65] 137M-4(1).

[66] Dr. Julien Guillaume, *Des conséquences fâcheuses du défaut d'hygiène dans les hautes vallées alpestres* (Lyon: Ancienne Imprimerie A. Waltener, 1895). p. 42.

Gross errors such as these must account for much of the educated condemnation of local matrons. Yet other, deeper motives may have produced the vehemence of these opinions. As one popular medical dictionary put it, the mass of rural midwives lacked not only expertise, but morality—that is, a fundamental commitment to the life and well-being of the child. Midwives often came under suspicion of infanticide, of ridding their patients of unwanted children in the very act of aiding delivery. Or, they might deliver the child to the nearest foundling hospital.[68] In the High Alps, the Inspector of Foundling Children stated in his annual report of 1839, that many midwives, "guided by the lure of illicit gain," were in the habit of unburdening new mothers by taking infants to the hospital and abandoning them.[69]

Moved by these accusations, the government steadfastly pursued a program of free medical training for department midwives. This program met with some success over the first three-quarters of the nineteenth century, but a lack of resources and peasant loyalty to their matrons blunted the impact of the program on the countryside. By the 1870s, little had been done to displace the traditional midwife.

III. Priests and midwives tended to stay in their home villages, or at least their immediate area, practiced fitfully and gained no wide reputation. Another group of folk-healers possessed a much greater reputation for either medical or magical skill in curing illness. Peasants came from distant villages to seek them out, much in the same way as they might come to town to seek a physician. The ignorant people of the countryside, sighed Dr. Manuel, "would be extremely unhappy if divine providence had not, in its goodness, awarded to a few privileged beings the *gift* of resetting limbs, and of knowing the *virtue* of the plants with which one can compound the waters, unguents and plasters that heal."[70] These

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[67] Both stories may be found in 137M-4(1).

[68] AN F^{1c} V Alpes (Hautes)-3, Prefect's report of 1839. See also Keith Thomas, *Religion and the Decline of Magic* (London: Weidenfeld and Nicolson, 1971), p 259; W. L. Langer, "Infanticide: historical survey," *Hist. Childhood Quart* 1974, *1*. 357.

[69] AN F^{1c} V Alpes (Hautes)-3.

[70] Manuel, *Essai*, pp. 133-6.

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privileged beings were the elite of folk medical practitioners in the department.

Descriptions of these people and evaluations of their capabilities varied widely depending on the source of the description. According to an anonymous health officer in the Serres region who submitted a manuscript on the subject to Prefect Bonnaire in 1800, they could be divided into charlatans and *maiges*. Charlatans go about from village to village peddling their false remedies, "the best virtue of which is to have none." Since they only pass through, they do some ill, but not so much as the *maiges*. These "audacious men, without talents, without knowledge," set themselves up in one place where the public seeks them out when sick. The advice of these *maiges* does incalculable harm, either because their remedies are of poor quality, or are wrongly administered.[71] Jean-Joseph Rey, a parish priest of La Cluse, presented a different assessment of their qualities in a view which probably lay closer to typical peasant attitudes. Most itinerant folk healers he characterized as "slow poisoners, the plague of states and the shame of well-administered nations." But such charlatans should not be confused with the "men of genius who, without having studied at Montpellier, or at Salerno, or elsewhere, are nevertheless profoundly learned; one recognizes them by their straightforward methods, bare of all scientific apparatus." They "perform cures which attest to their capability." Although simple men, they have cultivated minds, and do much good for the peasant community.[72]

In fact, the words "*maige*" and "charlatan" do not describe rigorously separate categories of healers. If the former was reputed to rely more on magic and superstition and the latter more on herbal remedies for therapy, the distinction was always one of emphasis rather than of essentials. Charlatans (or empirics, as they were sometimes called) traditionally reinforced the power of their specifics by gathering them at a magic hour—usually midnight of the eve of St. Jean—or by reciting prayers or spells.[73] *Maiges* could use herbs and unguents. The preference often reflected individual styles rather than any traditional division of labor. In the following descriptions, the original nineteenth-century appellations have been used as much as possible.

At the end of the eighteenth and at the beginning of the nineteenth centuries, *maiges* and empirics seem to have been extremely numerous in the countryside of the High Alps. Dr. Nicolas, epidemic doctor for Dauphiné during the last 15 years of the old regime, described a whole band of *maiges* who appeared at Barret-le-Bas shortly after he left in the autumn of 1780. They belonged to "the dregs of the people," ("shepherds"), and were "accomplished in the arts of seducing a credulous people." Under the cover of false titles, claiming to have been sent by the Intendant of Dauphiné himself, they had extracted 60 livres from the peasants of a neighboring village in no more than a quarter hour. Nicolas assures us that his complaints and administrative action brought justice. The group's leader, one Benoit, and one of his young accomplices were soon arrested.[74]

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[71] 141M, anon. ms:, "Observation d'un officier de santé sur la pratique des charlatans et des maiges . . ."

[72] AN F20-153.

[73] Bouteiller, *Médecine populaire*, pp. 49-52.

The same area of the department still possessed a large population of *maiges* in 1800, according to lists drawn up independently by two health officers of the region.[75] These two lists overlap somewhat, but together they include the names and residences of 13 *maiges* living in the eastern baronies, the Beauchaine and the valley of the Buëch. Four clergymen, one shepherd, and two peasants appear, along with at least two women. Certainly the reputations, as well as the skills and honesty of these folk healers varied widely; the lists give us no information on this matter. As a group, however, the health officers clearly considered them a threat to public health.

Another traditional folk healer of a type found throughout France, lived in Pelleautier, not far from Gap, at the beginning of the century. Jean Finette was his name, and he was a bonesetter or, as he was called in the High Alps, a "*rhabilleur.*" Using only his hands and the strength of his arms, he could reputedly set broken bones, repair dislocations and cure sprains. His skill had been handed down to him from his father, continuing an unbroken tradition which had made the Finette family *rhabilleurs* for two centuries. Finette's practice took him often to the villages of the Gapençais region, as well as Gap itself, and in the best folk-medical tradition, he claimed to charge only a small fee for his travels, or nothing if he did not have to visit the patient.[76]

The administration's information on Finette existed only because, oddly enough, he had been granted a legal right to practice medicine in the department in 1807. Acting under the provisions of the Medical Practice Law of Year XI (1803), Prefect Ladoucette had approved his claims to legal status for having practiced medicine prior to the date of the law. Thus Finette became a rare specimen in the nineteenth century—a genuine folk-healer who could practice in the open. His situation remained imperfect in his own eyes, however, for one reason. True to the traditions of his family, he had been training his son to succeed him. As old age approached, he petitioned the government to grant legal status to the young *rhabilleur*. Despite the support of the prefect, who argued that *rhabilleurs* performed a valuable function in the department, his petition was rejected. Young Finette reacted by pursuing the same course as that famous American family of bonesetters, the Sweets—he studied, succeeded and eventually joined the ranks of licensed, orthodox surgeons.[77]

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[74] P. F. Nicolas, *Histoire des maladies épidémiques qui ont regné dans la province de Dauphiné, depuis l'année 1775* (Grenoble: L'Imprimerie Royale, 1780), pp. 108-9.

[75] 141M.

[76] 136M-2.

It is very difficult to judge whether there was any increase or decrease in the number of folk-healers in the department between 1780 and 1870. Naturally no census included a professional category for an illegal occupation. No lists were prepared in the 1860s as they had been in 1800, in which folk-healers and licensed medical personnel were juxtaposed in symmetrical columns, as though of equal numbers. Complaints still reached the prefect from time to time, and Manuel could still talk of "daily" encounters with charlatans in the course of his practice, but the overall impression is one of decline in numbers.[78] What happened to the numerous *maiges* of the first decade of the century?

The obvious answer is that competition drove some folk-healers out of business. If legal medical personnel did not increase in numbers over the course of this period (in fact they fell slightly from a total of 28 in 1789 to 25 in 1873), they did increase their presence in the countryside, especially after 1857 when the Free Medical Service Law of that year came into effect.[79] The provision of free medical care, no matter how sporadic or imperfect the administration's program, must have hurt those folk-healers with less solid reputations. Some others survived, though, including one itinerant healer by the name of Barthélémy.

Barthélémy called himself an "herborist," and claimed to have exercised his healing gifts from 1824 to 1847 in the Hérault before coming to install himself at St. Crépin in the upper valley of the Durance. As his reputation grew, he decided to regularize his status by petitioning the Emperor for permission to practice medicine legally. To support his request, he gathered testimonials from his patients about some of his cures. Dating from 1852, when he cured a young nursing mother of blood in her milk, down to the date of the petition, his 28 testimonials permit some closer analysis of the extent of his travels, and the identity of his patients' maladies.[80]

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[77] *Ibid.*, Robert J. T. Joy. "The natural bonesetters with special reference to the Sweet family of Rhode Island," *Bull. Hist. Med.*, 1954, *28:* 416.

[78] Manuel, "Réflexions sur les abus qui se commettent journellement dans l'exercise de la médecine . . ." 134M-2.

[79] 138M-1.

In most cases the ailments he treated have strange, unidentifiable names. The testimonials mention the illness in short and rudimentary fashion, using popular terms little suited for precise identification of the site of the ailment. General descriptions, such as "chronic malady" or "infection of the arm" mix with mysterious or unidentifiable terms: "windy colic," *"englossement," "maladie d'errinie"* (hernia?), and eye humors. Barthélémy's therapeutic techniques are never described. Time after time, the credit goes to "his medicines" or "his treatment," indicating accurately that the important point was not the medicine itself but the healer.

In one case, however, details are more plentiful. Dominique Bresson, of the hamlet of Veyers, commune of Orcières, had a son who had broken his arm. Five years after the accident, the wound had never properly healed; an infected sore persisted at the point of the break. When Barthélémy came through the commune in the summer of 1853, Bresson presented his son to him, and the treatment began. After one month, two pieces of bone emerged from the arm, the wound healed, and perfect health soon ensued, or so the father attested. Apparently the healer, aided by his herbal remedies, had either manipulated the area enough to free the infected bone splinters or had pretended to do so. At any rate, this quick success must have contributed greatly to the favorable public opinion of Barthélémy in the mountain-bound commune of Orcières.

If, with a few exceptions, both the ailments he treated and his method of therapy remain obscure, the satisfaction proclaimed by the often painfully illiterate testimonials cannot be ignored. His success, at least in the eyes of the peasants, was unquestioned. Nor was this reputation confined to his immediate neighborhood. His tours to find or visit the sick, led him over 70 kilometers from his home in St. Crépin, in repeated journeys across the middle third of the department. Such journeys in the mid-nineteenth century posed enormous difficulties, especially since some of the communes he visited were quite remote, such as Orcières, and LeNoyer in the High Alps, and Venterol in the neighboring department of the Basses Alpes. He must have spent weeks on muleback, laboriously climbing and slowly descending narrow trails, often little more than footpaths. Few physicians in the department could claim such extensive travels.

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[80] 136M-2.

By 1857, his fame had spread across the mountains as far as Barcellonnette, a distance of 35 miles over the Vars pass. A letter from Casimir Gaimard of that town to Barthélémy, "care of M. Bernardon, innkeeper near the barracks, Gap," dated 29 Sept. 1857, gave the following testimony to his reputation.

> It is a blessing to me when I hear of someone whose talent is healing the poor sick, especially when those who testify to it have been cured themselves, as was she who undertook to inform me of your talent, and even to encourage me to address you, so that you might rid me of the suffering I have endured for 6 years.[81]

The value of Barthélémy's treatment cannot be denied. On some level he relieved suffering. The Emperor did not grant his request for legal status, of course; successful or not, Barthélémy did not belong to the increasingly well-defined group of practitioners of Western scientific medicine—the only group the government would support. This setback does not seem to have deterred him in his practice, though. Barthélémy had been traversing the countryside to visit the sick long before the petition, and Catelan found him in the Champsaur eight years afterward, still practicing.[82]

The administration's attitude toward such widely-reputed folk-healers as Barthélémy varied between blithe *laissez-faire* and periodic harassment. On the one hand, such men could not be ignored. Their fame and wide travels through the department must have made them familiar figures, and, legally, some action was required when a doctor lodged a complaint. But on the other hand, the problems of repression were numerous. This official vacillation is perfectly illustrated by the story of another of the area's folk-healers, Navarrino of Ventavon.

Navarrino came to the High Alps from the canton of Varal, in Italian Switzerland, around 1818. By trade he was a cooper, but he had gained some kind of medical knowledge from his uncle; when the poor people of the Durance Valley came to him for advice, he obliged. They would not have visited a licensed physician anyway, he observed, no doubt accurately. He soon ran afoul of Dr. J. Bertrand, a licensed practitioner, who complained to the prefect in October, 1819. The mayor of Ventavon came to Navarrino's defense—the folk-healer had already cured several of the

[81] *Ibid.*

[82] *Ibid*

mayor's relatives of rheumatism, apparently—but to no avail. The healer was arrested, reprimanded and then soon released. The same thing happened six years later, when it was alleged that he practiced as far away as Sisteron, a town in the Basses Alpes 20 miles south of Ventavon. Another reprimand followed, with another prompt release.[83]

The administration checked on Navarrino again four years later. The mayor gave his assurances that his talented *administré* was refusing all requests for remedies. The folk-healer had indeed come to the aid of Dr. Joseph Oeuf when that physician was sent to treat an epidemic at Ventavon, but then licensed practitioners often asked him to keep an eye on their patients, and to make sure that the prescribed diet or treatment plan was scrupulously observed. Apparently the local mayor was not the only one with some confidence in Navarrino's abilities.

The case might have rested there but for another complaint, this time by Dr. Blanc. Again, the prefect sent letters to the mayor demanding close surveillance of the healer. The government was not moving to arrest him this time, noted the Royal Prosecutor, because it was not clear whether he had ever accepted payment for his services, and because he obviously enjoyed the respect of the community. Actually, these same arguments were applicable in 1819; this sudden concern with Navarrino's popularity really signaled the government's decision not to pursue the matter any further.

The mayor summarized Navarrino's position in what turned out to be the final word on the affair, a letter to the prefect on the 28 October 1838—nineteen years after the first arrest. He possesses a reputation for curing certain ills, said the mayor, so that people search him out, coming not only from Ventavon but from other communes as well. "He only performs the service to be useful to his peers and to comfort them with his knowledge."[84] His remedies had never been an object of complaint nor did he ever, claimed the mayor, perform dangerous or harmful operations.

The administration of the department certainly faced enormous difficulties in attempting to enforce the laws against illegal medical practice. The great distances, the difficulties of communication, the small number of government officials and the peasants' sympathy for "their" healers, all rendered enforcement practically impossible. Even if it had been possible for the government to track down and arrest even the few most active healers in the department—the Barthélémys and the Navarrinos—

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[83] This account of Navarrino's career may be found in 141M.

[84] *Ibid.*

such an undertaking would have seriously undermined the basis of administrative power in the countryside. The prefect needed the good will of the populace for every detail of daily business. He could hardly afford to alienate such influential village figures as the priest, the midwife or the mayor, for the sake of arresting a few peaceful charlatans.

Despite their avowed hostility to folk-healers, the physicians could not afford to alienate these influential village figures either. Without someone to aid them in their visits, someone to accompany them to the houses of the sick and administer their remedies when they had to leave, their own effectiveness as healers would have been seriously compromised. Who could better aid them than the priest, the midwife, or the mayor? Thus we hear of village priests aiding Dr. Bonnety during an epidemic at Salérans in 1862, and Dr. Reynaud during a similar crisis at La Roche-des-Arnauds in 1863.[85] Occasionally the assistant would even be a "charlatan." We have just seen how Navarrino fulfilled this role in Ventavon for Dr. Oeuf. In short, professional rivalries and jealousy could not overcome the department's desperate need for medical personnel; those doctors who truly cared for the well-being of their patients would not hesitate to press local healers into service in time of need, so long as their position of superiority was clearly understood.

The licensed medical personnel realized that too many attacks on the practitioners of folk medicine lost them respect in the eyes of the populace. Dr. Manuel noted that a close surveillance of the illegal practice of medicine injured the doctor's professional dignity. "All that moral apparatus indispensable for his ability to do good would disappear like a futile spectre from the moment when he is perceived as an ordinary mechanic, to whom the least competition gives offense."[86] In this he was certainly correct. The populace demanded a singular devotion to the sick from their healers, whether legal or illegal, *maige, rhabilleur,* or physician. Every complaint to the prefect appeared in their eyes as greed, jealousy, or meanness unbecoming a healer.

IV. Yet one final question remains unanswered: were the licensed physicians justified in attacking the folk-healers? Did the people's health really suffer from the effects of folk medicine? No definitive answer can be given to this complex question, of course, but some tentative answers must be proposed.

In their own minds, at least, licensed physicians had no doubts as to the

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[85] 139M-10.

[86] Manuel, "Réflexions" in 134M-2.

"immense damage" these "ignorant empirics" caused. Words like "maim" and "assassinate" came easily to hand when they considered the subject. Dominique Villars, the eminent botanist and physician of Grenoble in the late eighteenth century who had spent his youth in the High Alps, went so far as to describe the motivation of his whole medical career as a crusade against charlatans.[87] These generalizations often lacked supporting detail. Concrete examples of incorrect diagnosis or incorrect treatment are few.

M. Cher, the health officer who submitted the list of *maiges* in 1800, substantiated his accusations with a true horror story of folk medicine gone awry. Magdaleine Barjavel, he affirmed, a *maige* of long standing in the village of Lagrand, had attempted to cure a man from Eyguians of "melancholic vapors" which sometimes resembled mania. Under her direction, several men carried him under a waterfall; unfortunately, he drowned from a surfeit of cure.[88] Another horror story comes to us from the gendarmes in the Remollon region. In 1836, a Italian folk-healer had passed through the region, selling an elixir. He had also operated on two men for goitre, one in Remollon and one in Théus, a small village just upstream. The first operation was a success. However, the local justice of the peace and gendarmes had to exhume the evidence of the second operation from an unmarked grave.[89]

Undoubtedly, a few other shallow graves in the department hid the evidence of failure by folk-healers who had grown too careless, or too confident. Such incidents were probably fairly rare. The Italian healer moved on and, thus did not suffer from the unpopular reception his clumsiness must have provoked; Barjavel's local reputation would presumably have been destroyed by frequent recurrence of such unfortunate accidents. Death of a patient, even accidental could never have formed the basis for a successful medical career.

Dr. Manuel gave a more sophisticated analysis of the consequences of folk therapy in his 1852 manuscript, "Reflections on the Daily Abuses in the Practice of Medicine and Pharmacy." The least of the evils of folk medicine, he observed, lies in making the people pay dearly for remedies which do not improve in any way their chances for recovery. More importantly, the attentions of the folk-healer tend to quiet the fears of relatives and friends long enough so that when the real physician finally arrives, he can do nothing to save the patient's limb, or even his life.[90]

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[87] Dejarnac, *Villars*, p. 12.

[88] 141M.

[89] *Ibid.*

On the first point, doctors and folk-healers differed greatly on how much the latter received in payment. The physicians often depicted the charlatans as stealing off with huge sums under their arms, booty extorted from a gullible public. P. F. Nicolas states that the band of *maiges* he saw in 1780 extorted 60 livres in less than a quarter-hour, while Catelan estimated a charlatan in the Valgaudemar in 1852 gained 900 francs in eight days.[91] Where the peasants found such coin is a mystery, as is their apparent willingness to part with it. Dr. Manuel's assessment appears closer to the mark when he observed that payment for bonesetters was usually in kind. He could not resist making fun of the scene: ". . . the farce finished, the hero retires, bent over with the weight of his salary."[92] Folk-healers and peasants told a different story. According to them, their fees were always small, sometimes nil, and certainly not burdensome. Comparison with other studies of folk-healing, both in Europe and the Americas, tend to confirm the latter view. Traditional role behavior involved accepting only small payments from the poor, although the rich might be charged more.[93] Exploiters most certainly existed, but the most common scene must have resembled the one described by Emile Guillaumin in his great novel of nineteenth-century French peasant life, *La Vie d'un simple*. When Tiennon and his wife asked about payment for treatment of their son, the healer replied, "I take nothing from the poor. But there is a collection box over there in which each puts what he wants."[94]

Manuel's second point undoubtedly makes sense insofar as licensed physicians had a superior therapy or prophylaxis to offer to the sick. In certain cases, such as malaria, complicated fractures or smallpox, it is clear that they did. Even poorly administered as it probably was, cinchona had a better effect on "intermittent fevers" than anything the folk-healers could offer. The number of clear instances of this superior therapeutic effectiveness was quite small, however. In most cases, what the physicians offered was not very much better than what the folk-healers offered.[95]

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[90] 134M-2.

[91] Nicolas, *Histoire des Maladies*, pp. 66-7; 136M-2.

[92] Manuel, "Réflexions," 134M-2.

[93] Hand, "Folk-healer," pp. 273-5; Bouteiller, *Médecine Populaire*, pp. 47-8; Octavio Romano, "Charismatic medicine, folkhealing and folk sainthood," *Amer. Anthro.*, 1965, *57:* 1152-4.

[94] Emile Guillaumin, *La Vie d'un simple*, (Paris: Brodard et Taupin, 1975), p. 156.

[95] Doubts about the physicians' therapeutic effectiveness range from the physicians themselves, where expectation (the medical therapy involving only supportive treatment) was popular, to modern commen-

Surprisingly, few physicians were willing to link their accusations of assassination to specific folk remedies. When the consideration of popular pharmacopoeia descended from the general to the specific, most physicians admitted that, by and large, it was harmless. Dr. Jean Nicolas provided some well-informed analysis on this subject in his 1824 thesis *Topographie Médicale du Champsaur,* relying on his personal experiences growing up in that region. Concerning pleurisy, he reported

> Here it is that often the last woman of the village imposes silence on the physician, and where the pharmacology of the old women shines in all its glory. Bugloss, colt's foot and violet bring their contributions; happy indeed would be the patient surrounded with such doctors if they limited themselves to the use of these plants, the soothing properties of which are always suitable in such circumstances.[96]

Such was not always the case, unfortunately. He goes on to observe that warm wine flavored with pepper, cinnamon, nuts or nutmeg, nettle seeds or genepy was often administered as well.

> Great damage could result from the abuse of these plants, which unite in a high degree tonic and stimulating properties, if the people, as ignorant as they are credulous, didn't imagine that they can perform miracles with a tiny pinch of their leaves, boiled in a litre of water. As long as they only employ them in this manner, the patient runs no great risk; but sometimes they surpass the dosage prescribed by habit.[97]

Yet "harmless" did not fully characterize the virtues of local herbal remedies, as the physicians themselves admitted. Especially in the late 18th and early 19th centuries, the most widely reputed physicians in the department often prescribed remedies which included local herbs, such as gentian, Briançon manna, violet, blackberry root and giant centaury. Even P. F. Nicolas (proud bearer of the title *Médecin du Roi*) used them, especially as tonics and febrifuges. Undoubtedly some of these herbs actually did possess some pharmacological effects as emetics, laxatives and tonics.[98]

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tators on demography. See Spears, "Peasants," pp. 233-242; Thomas McKeown, and R. G. Record, "Reasons for the decline of mortality in England and Wales during the nineteenth century," *Pop. Studies*, 1962, *16:* 94-122.

[96] J. Nicolas, *Topographie*, p. 45.

[97] *Ibid.*

[98] P. F. Nicolas, *Mémoire sur les épidémies qui ont regné dans la province de Dauphiné depuis l'année 1780* (Grenoble: L'Imprimerie Royale, 1786), pp. 7-9; Dominique Villars, *Observations de médecine sur une fièvre épidémique qui a regné dans le Champsaur et le Valgaudemar en Dauphiné* (Grenoble: Imprimerie Royale, 1781), p. 67; L 331; 138M-10. See also Mme. Rivière-Sestier, *Remèdes populaires en Dauphiné* (n.p., Imprimerie Mazel et L'Argentière, 1943).

Any sophisticated review of the effects of medicines must go beyond consideration of physiological effects. The psycho-social components of the administration of medicines, such as the placebo effect, and the benefits of the doctor-patient relationship must be considered as well.[99] When illness is seen as an undesirable change in a whole series of interdependent bodily systems, including the psychological and psycho-social as well as the molecular and cellular, then the value of the folk-healers' remedies and therapy becomes obvious.[100] If they could not heal typhoid fever or tuberculosis (any more than the licensed practitioners could), they probably could heal, or at least provide valuable relief for, illnesses in which the psycho-social component is very important. Rheumatism, arthritis, bronchitis, mental disorders, tumors and a whole series of ill-defined pains fall into this category, as well as folk-illnesses specific to one culture only, such as the Greek "wandering navel" or the Mexican *susto*.[101]

In fact, whenever references to folk-healers' cures can be found, the illnesses in question seem to have been chronic disorders, folk illnesses or other diseases in which a large psycho-social component may be presumed. Barthélémy's successful cures as presented in his testimonials never included malaria, continued fevers or diphtheria. He concentrated instead on rheumatism, tumors, stomach pains, "paralysis of the tongue," ulcers, etc.[102] Navarrino began building his reputation by curing the local mayor's relations of rheumatism and Barjavel was dealing with mental illness.[103] Healers claiming to cure stomach pains, intestinal or kidney disorders are still remembered by contemporary chroniclers of the department's folklore.[104]

Numerous references emphasize the warmth, charity and concern for the patient as a human being as a common characteristic among French folk-healers—what might be called an effective psychotherapeutic style. Pierre Brioude, the famous bonesetter of Auvergne, for example, worked with kindness and patience, and "took the time to encourage them as he might have a friend: '*Helas*, my poor one, it is nothing,' he assured a patient, 'you will soon be cured, agile as before.' "[105] The *rhabilleurs* of the High Alps must have worked the same way, combining a supportive attitude with a firm, reassuring touch. This manner must have formed the basis for the "seduction" of the people which was Manuel's only way of explaining popular loyalty to folk-healers. In contrast, Manuel himself did not work well with rural patients, and by his own admission felt uncomfortable treating chronic illnesses.[106] To the peasants in the sixteenth medical district where he was the physician assigned under the Free Medical Service Program, the advantages of a Barthélémy in cases of chronic illness must have been obvious.

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[99] The literature on this subject is quite extensive. For an able recent survey on the popular level, see Bernard Dixon, *Beyond the Magic Bullet* (London: George Allen and Unwin, 1978); more specialized are Michael Balint, *The Doctor, His Patient and the Illness* (London: Pitman Medical Publishing, 1964); Jerome D. Frank, *Persuasion and Healing* (New York: Schocken Books, 1963); on the placebo effect, see especially A. K. Shapiro, "The placebo effect in the history of medical treatment: implications for psychiatry," *Amer. J. Psychiatry*, 1957, *116*. 298-304.

[100] This definition was drawn from Horacio Fabrega, *Disease and Social Behavior: An Interdisciplinary Perspective* (Cambridge: M.I.T. Press, 1974), pp. 140-1.

[101] Richard and Eva Blum, *Health and Healing in Rural Greece* (Stanford, California: Stanford University Press, 1965), p. 53; Gordon Schendel, *Medicine in Mexico* (Austin: University of Texas Press, 1968), p. 140.

[102] 136M-2.

[103] 141M.

[104] Emile Escallier, "Le folklore de la Batie-Neuve," *Bull. Soc. d'Etudes des Hautes-Alpes*, 1951, 93-4.

The *rhabilleur*'s touch certainly fulfilled some need of the patient who was disturbed, for instance, by a fall. Dr. Armand Rey of Grenoble realized this fact as a young medical student in the Isère, according to a story he related in the *Bulletin Médical du Dauphiné* in 1864.[107] A local man had been carrying a heavy sack of flour across a narrow bridge when he fell, landing with the sack on top of him. He was presented to the young Rey, who gave the classic diagnosis and prescription: sprain, leeches, rest and something to reduce the inflammation. The patient was hardly pleased. "You don't want to *rhabille* me? Well then, I am going to have myself taken to la Chapelle Blanche [a local shrine]." Not willing to lose his patient, Rey began an imitation of a *rhabilleur,* pulling and manipulating the man's limbs until the patient was so stiff and sore that he could hardly move. The poor man was delighted. "Why didn't you do that in the first place?" he asked, and was soon on the road to recovery.

The combination of this effective psychotherapeutic behavior with a wide knowledge of the potential of local herbal remedies as well as the placebo effect of inert medicines gave the folk-healer a large chance of reducing pain. He could not cure the disease in the modern sense of the term, but since so many diseases are self-limiting anyway, what was perceived as his success rate must have been entirely respectable.

Thus the peasants' behavior in protecting their folk-healers from harassment by the administration and the officially sanctioned medical practitioners would seem to be an appropriate action based, at least in part, on a just assessment of their own health needs. The vast majority of folk-healers only disappeared with the long drawn-out destruction of traditional rural society and the small scale cultivation on which it was based. As some remnants of that society persisted as late as the 1940s, so a few elements of folk medicine persisted, even in the larger towns of Veynes, Tallard and Embrun.[108] The doctors' victory in the countryside, long delayed, really came only when the countryside had been emptied by emigration in the twentieth century.

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[105] Bouteiller, *Médecine Populaire*, pp. 47-8.

[106] 141M; 138M-3.

[107] *Bull. Méd. Dauphiné*, 1864, 2: 89-97.

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[108] Van Gennep, *Folklore,* 2: 106-7, Bouteiller, *Médecine Populaire,* Pt. II.

BLOODLETTING IN EARLY CHINESE MEDICINE AND ITS RELATION TO THE ORIGIN OF ACUPUNCTURE

D. C. EPLER, JR.

One of the most distinctive features of modern Chinese medicine is the practice of acupuncture, the insertion of needles at points on a network of tracts lying beneath the skin. The technique is said to be over 2000 years old and contemporary authors continue to cite ancient texts when describing its theoretical foundations.[1] However, when these ancient texts are approached as historical documents, rather than as source books that can be continually reinterpreted for medical practitioners, then they indicate vast differences between the early use of needles and the present form of acupuncture. What is now known as acupuncture is thus the result of a long development and bears little resemblance to its ancestral version.

Historical material relevant to Chinese medicine and acupuncture prior to the fifth century B.C. is very scarce and what information there is on the formative stages comes from the fourth to the first centuries B.C. Even from this period most texts have been lost but in 1975 several were discovered in a tomb of the Western Han dynasty (206 B.C.-A.D. 9); the tomb had been sealed in the year 165 B.C. and the medical texts are in a style of script that indicates they had been written down around 220 to 200 B.C. The textual contents suggest to Chinese scholars that they were actually composed as early as the early fourth or late fifth century, dates that can be accepted only provisionally.[2] The texts are significant not only because of their age but also because they have not been tampered with over the intervening centuries. This cannot be said of other ancient medical works since most have been damaged and have passed through the hands of successive editors.[3]

The texts from the tombs provide valuable adjuncts to the most important of the extant ancient medical books, the *Huang-ti nei-ching*, the *Inner Classic of the Yellow-Sovereign*, a collection of usually short treatises by an unknown number of authors. In its present version the *Inner Classic* consists of two parts, the *Su-wen*, *Plain Questions*, and the *Ling-shu*, or *Divine Pivot*. The history of the *Divine Pivot* is confused but it is clearly a more recent work than most of the *Plain Questions* and will not be cited in this paper.[4] About a third of the treatises of the *Plain Questions* are most likely T'ang dynasty (618-907 A.D.) interpolations while the remaining two-thirds, some sixty odd, are generally believed to have been composed at different times during the third to the first century B.C.[5] These latter treatises will form the basis of the present study and more on their dates of composition will be said below.[6]

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[1] See for instance Manfred Porkert, *The Theoretical Foundations of Chinese Medicine* (Cambridge: MIT Press, 1974). For Chinese texts see his bibliography, pp. 347-352.

[2] Anon., "Ma-wang-tui pu-shu ssu-chung ku-i-hsüeh i-shu chien-chieh," *Wen-wu*, 1975, *6:* 18. The transcriptions of the texts are in the same journal, *Wen-wu*, 1975, *6:* 1-6, and *Wen-wu*, 1975, *9:* 35-48.

[3] Most important was the government medical bureau set up in the Sung dynasty to edit early texts See Miyashita Saburo, "SōGen no i-ryo," in Yabuuchi Kiyoshi, *SōGen jidai no kagaku gijutsu shi* (Kyoto, 1967), 123-170, pp. 146-7.

The *Plain Questions* does not embody a single coherent, logical system of medicine that served as a contemporary standard of orthodoxy. There was no such system prior to and during the Western Han: early Chinese medicine consists of assorted, sometimes contradictory, theories and practices that were in a considerable state of flux for many centuries. The extent of conceptual change is revealed as early as the third century A.D. by medical writers who were stating that what they called the "ancient texts" were obscure and difficult to understand; for instance Huang-fu Mi, author of a text on acupuncture, says of the *Plain Questions* that its import is "profound and mysterious, not easily perceptible."[7] This means that all later texts and commentaries are of very limited value for a historical interpretation of the *Plain Questions*. Their authors, writing for a medical audience, were able to select specific passages for inclusion in their own works or for comment; when these same passages are considered in their historical contexts, their meaning may be quite different.

The individual treatises of the *Plain Questions* cover a span of two or three centuries but are undated and to arrange them in any sort of chronological order is not easy. It is, however, possible to suggest a rough sequence based on the evolution of certain concepts like circulation and the use of needles in treatment of disease; such a sequence is proposed in the course of this paper. Comparison with the contents of the texts from the tombs provides a starting point. Then another text, one that has been assigned to a precise period, the biography of the physician Ch'un-yü I that appears in a historical chronicle of the first century B.C., the *Shih-chi,* serves as an additional guide. The biography was compiled from the physician's own case histories from the years 167 to 154 B.C.[8]

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[4] For bibliographical material on the *Ling-shu* see Okanishi Tameto, *Sung i-ch'ien i chi k'ao*, 4 vols. (Taipei reprint, 1970), 1: 32-43, and Liu Po-chi, *Chung-kuo i-hsueh shih*, 2 vols. (Taipei, 1974), 1: 13ff.

[5] On the *Su-wen* see Okanishi, 1. 3-32 and Liu Po-chi, 1: 13-23.

[6] All further references to the *Plain Questions* in this paper signify only the early treatises, not the T'ang interpolations. "Treatise" is perhaps somewhat grand but I have used it rather than "chapter" to emphasize the nature of the *Su-wen* as a disparate collection.

[7] Huang-fu Mi, *Chen-chiu chia-i ching* (Peking: People's Hygiene Press reprint of a Ming edition, 1955), Preface.

By using a chronological grouping of the treatises of the *Plain Questions* there will be an attempt in this paper to indicate the development first of concepts of the vascular system and basic ideas of circulation. Then with that as a background, the practice of bleeding and the emergence of early acupuncture will be outlined.

The practice of bloodletting was, at all stages of its development, closely associated with the vascular system. The earliest detailed picture of the vascular system found in Chinese medical literature is in two of the texts recovered from the Han tombs. Each of these texts consists of a list of vessels and a related disease syndrome.[9] The first text, Treatise I, lists eleven *mo,* or vessels.[10] These vessels are also referred to in non-medical texts where they designate blood vessels, particularly the superficial veins.[11] They are usually mentioned in conjunction with blood and *ch'i,* pneuma.[12] This is to be a general feature of concepts of circulation throughout the Han dynasty; all vessels contain both blood and pneuma and a division between vessels solely on the basis of their contents is not found.

Treatise I says nothing about the physical nature of the vessels but does describe the course of each one. Three are given anatomical designations, the shoulder, ear, and teeth vessels. These three follow courses from their named starting point down the arm to the dorsal surface of the hand or the fingers. The other eight vessels are referred to in terms of the arms or the feet and yin and yang. Yin and yang are the two principles of the universe, expressed for example as passivity and activity, female and male, dark and light. Each is subdivided into three categories or gradations (major, minor, and splendor of yang; major, minor, and lacking of yin), so producing a six-step spectrum from one extreme to the other.[13] Two of the eight vessels are then named the "foot major-yang vessel" and the "foot major-yin vessel," the former running from the lateral surface of the ankle through the popliteal fossa then along the spinal column to the head and the latter from the stomach to the medial surface of the ankle. Two others are the "arm major-yin" and the "arm lacking-yin vessel," both from the arm to the heart. The other four all follow various routes from the feet up the leg through the torso to the head.[14]

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[8] *Shih-chi,* 105; there is a translation by R. F. Bridgeman, "La médecine dans la chine antique," *Mélanges chinois et bouddhique,* 1955, *10:* 17-50.

[9] Anon., "Ma-wang-tui Han-mu ch'u-t'u i-shu," *Wen-wu,* 1975, *6:* 1-6. Chinese researchers have suggested titles for these two treatises but for brevity I cited them by the numbers in the transcription. The suggested titles could be improved by reflecting the fact that the texts are about disease (*ping*); the *mo* are of secondary importance. The recent article, A. Akahori, "Medical manuscripts found in Han Tomb No. 3 at Ma-wang-tui," *Sudhoffs Archiv,* 1979, *63:* 297-301, was not available to me.

[10] *Wen-wu,* 1975, *6:* 1-3. There will be some disagreement with the translation of *mo* as "vessels" but I believe it is both justified and accurate for this early period. The whole question of the *mo* is discussed throughout this paper.

[11] E.g., *Tso chuan,* Duke Hsi 15, translation in J. Legge, *The Chinese Classics,* 5 vols. (Hong Kong: 1861-1872) 5: I, 167-168. Also see Bridgeman, "Médecine," p. 137.

[12] *Tso chuan,* Duke Hsiang 21, Legge, *Chinese Classics,* 5: II, 488. "*Ch'i*" is probably best left untranslated but "pneuma" is not unreasonable for this period. See J. Needham and Lu Gwei-djen, "Modernization of ancient Chinese technical terms," *Annals of Science,* 1975, *32:* 499.

There are several features of these vessels important for much of the development of Chinese anatomical and physiological thought. They establish one system of vessels for both blood and pneuma. They establish the basic nomenclature and roughly the basic courses that will be followed in subsequent medical texts. They are founded to some extent on the actual vascular system: the vessels incorporate for at least part of their courses the superficial veins of the arms and legs and where they enter deeper tissues there are obviously any number of veins and arteries or even non-vascular ducts that would fit parts of their courses. Thus their courses are not purely imaginary: they are derived from observation of surface anatomy and a fair knowledge of internal anatomy but not from systematic dissection. That is, the Chinese were familiar with gross anatomy and with the superficial and deep veins and arteries, but they did not experimentally dissect and trace out the course of each vessel. Hence the rather eccentric pathways; the same vessel may consist of sections of several different actual veins and/or arteries.[15] In most of the early medical texts discussion of anatomy is kept to a minimum and is subservient to the main themes of disease, diagnosis and treatment. As a result, descriptions of the vessels are not complete; there is no indication if they were connected with each other in any way nor, with the exception of two, what, if any, connection they had with the heart or other organs.

[13] On the terms yin and yang see Porkert, *Theoretical Foundations*, pp. 9-23.

[14] *Wen-wu*, 1975, *6:* 1-2. There is a discussion of this treatise in the same issue, pp. 16-19.

[15] On anatomy see Kozo Watanabe, "General remarks on dissection and anatomical figures in China," (in Japanese), *Nihon Ishigaku Zasshi*, 1956, *7:* 88-182. Dissection of the bodies of two criminals in the first century A.D. had among its aims to trace out the course of the vessels with a bamboo stick. See Yabuuchi Kiyoshi, *Chūgoku bunmei no keisei* (Tokyo: Iwanami, 1974), p. 306.

Treatise II from the tombs repeats the above system and adds a second, also of eleven vessels, but called *wen,* a term that does not appear in later texts.[16] The courses of these differ somewhat in detail from the first set but do follow the same general pattern. There is no indication of the relationship between these two sets of vessels, the *mo* and the *wen;* the *wen* may be a slightly later version of the *mo* or perhaps a version from different source material. The *wen* do not seem to play a part in future developments.

The course of the evolution of a theory of circulation from its presentation in Treatises I and II can be traced over the next two or three centuries through the treatises of the *Plain Questions.* These treatises continue to refer to a number of vessels, *mo,* that follow more or less the courses described in the tomb texts, from the extremities to the chest or head, and that convey blood and pneuma through the body. The terminology is retained; it is now more systematized but the vessels are still cited in terms of the six aspects of yin and yang. When the vessels are enumerated, there are twelve, not eleven, and they are named after the hands and feet rather than the arms and feet; thus, the "hand major-yin vessel," or the "foot minor-yang vessel" and so forth for the other ten. However, the system of twelve is not definitively established before the first century B.C.; many of the treatises refer to vessels simply in terms of, for instance, major or minor yin, without prefacing "hand" or "foot" and in general the vessels in the arm are much less important than those starting from the foot.

There are many indications of the still formative nature of anatomical thought during the third to the first centuries.[17] In addition to the twelve vessels, one treatise gives the courses of three others, perhaps originally concerned with reproduction in some way,[18] while another lists a further eight vessels.[19] There are frequent references in several of the treatises to sections of vessels that are not denoted by the yin and yang terminology at all, but rather are readily identifiable anatomical descriptions; they include the "large vessel on the upper surface of the foot," "the vessels beneath the tongue," "the large vessels in the popliteal fossa," "the large vessel on the inner surface of the thigh," and "the vessels on the back of the hand."[20] These are considered by later commentators to be portions of one or other of the twelve vessels,[21] however in the context of the Western Han period the significance of such references lies in the prominence placed on superficial veins in the conceptualization of the vascular system as well as in the importance of observation of surface anatomy.

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[16] *Wen-wu,* 1975, *6:* 3-6.

[17] These dates are intended only as a rough guide The *Plain Questions* is not to be taken as representing the whole of medical thought in this period. Most works have been lost and, as with the history of Western medicine, we see only certain aspects of the overall picture.

[18] *Su-wen,* 60.290-291. All references to the *Su-wen* are by chapter and page number of the Commercial Press edition: *Huang-ti nei-ching su-wen* (Shanghai: Shang-wu yin-shu-kuan, 1955).

[19] *Su-wen,* 41.205 ff.

There are many allusions to blood and pneuma in the vessels but while there is evidence of their organic nature, there are no statements about their physical structure; nowhere are they said to be hollow tubes for instance. This is not of any particular significance, however, since nothing is said about the structure of any of the other organs either.

The most important innovation in concepts of the vascular system found during the period of the composition of the *Plain Questions* is seen in the appearance of two terms for the vessels, the *ching* and the *lo*. *Ching* means the warp of a loom, or strands running lengthwise as opposed to crosswise, and as a verb, "to pass through." *Lo* refers to cotton or silk fibres or cords and as a verb may mean "to connect."[22] There are two immediate questions concerning these terms: what is their relationship with the vessels already mentioned, and what is their relationship with each other?

First, they are partially synonymous with the *mo*, the vessels; they each represent a different portion of any given vessel. The origin of this differentiation is obscure but possibly sometime during the fourth or third centuries each vessel was said to be divided into one portion which ran lengthwise, unseen, through the limbs and torso, the *ching*, and one portion where the vessel could be discerned running beneath the skin, the *lo*.[23] This means that, for example, the *lo* sections of the six vessels running from the foot to the head or chest would incorporate the venous arch of the foot and much of the long and short saphenous veins while the *ching* section would be the deep veins and the arteries of the leg. Once the vessels enter the torso, the picture becomes confused; both *ching* and *lo* are found but the basis for the distinction between them here is not clear. Thus,

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[20] See *Su-wen*, 52.247-250.

[21] Cf. Wang Ping's commentary to *Su-wen*, 52.

[22] Morohashi Tetsuji, *Dai Kan-Wa jiten*, 27405 and 27426.

[23] This distinction does not apply to the modern usage of the terms *ching-lo* but is stated explicitly in both the *Ling-shu* and *Chia-i ching*. From the latter: "Lei Kung asked, 'How does one know the difference between the *ching* vessels and the *lo* vessels?' Huang Ti replied, 'The *ching* vessels are those that are never visible . . . Those vessels that can be seen are all *lo* vessels. None of the *lo* vessels are able to pass through the interspaces of the large joints and so must break their pathway, emerging and re-entering, uniting again within the skin. Where they meet can all be seen externally.' " (*Chen-chiu chia-i ching*, 2.26A.)

> A cold pneuma may lodge between the small intestine and the attachments of the omentum and within the blood of the *lo* (vessels). The blood becomes congealed and is not able to flow into the large *ching* (vessels). The blood and pneuma are retained, unable to course through . . .[24]

The point of connection between the two portions of a vessel is often noted in descriptions of disease; the communication between the two may be disrupted or blocked[25] but may equally serve as a pathway for the causative agent:

> The twelve *ching-lo* vessels (can be influenced through) the zones of the skin. Thus the onset of the hundred illnesses is as follows: (the causal agent) must enter through the skin and hair. If a pathogenicity[26] enters there then the pores open. If the pores open (the pathogenicity) then enters and lodges in the *lo* vessels. If it remains there and is not expelled, it then spreads into the *ching*. If it remains there and is not expelled, it then spreads and enters into the organs.[27]

In a few of the treatises, most likely later ones, yet a third division of the vessels is found; the *lo* are subdivided into small branches, the *sun,* corresponding to small surface vessels. The route of the pathogen is then first through the *sun,* to the *lo,* then to the *ching.*[28]

The terminology is not changed; the hand or foot, yin or yang designation is applied to both the *ching* and the *lo*. The physiology remains the same as well, with blood and pneuma flowing through both. The distinction is an anatomical one. The *mo* (vessels) subsume the whole of the actual vascular system while the *ching* denote those components that are found in deeper tissues and the *lo* are those nearest to, and often visible on, the surface. Several of the treatises refer to the *lo* being visible; in one, "A Discourse on the Skin Zones," the appearance of "superficial *lo* (vessels)" in different areas of the skin serves as a diagnostic aid:

> When (the superficial *lo* vessels) are mostly blue in color then there is pain; when they are mostly black, then there is a rheumatic illness.[29] When they are

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[24] *Su-wen,* 39.197.

[25] Throughout *Su-wen,* 39.

[26] Pathogenicity, *hsieh*. *Hsieh* is an external disease producing agency that enters the body as described in this passage. It is associated with atmospheric factors, especially wind and rain, or with food and drink. See *Su-wen,* 62.310.

[27] *Su-wen,* 56.260. The term for "pores", *ts'ou-li,* is defined by some commentators as the space between the flesh and underlying musculature. It seems to mean "pores" in much of the *Su-wen* however. See *Chung-kuo i-hsueh ta-tzu-tien,* 4 vols. (Taipei, 1971), 3: 3575.

[28] *Su-wen,* 63.313, 62.310.

[29] *Pi,* see Yü Yun-hsiu, *Ku-tai chi-ping ming-hou su-i* (Peking: People's Hygiene Press, 1953), p. 39.

mostly yellow and red, then there is a fever; when they are mostly white then there is a chill. When the five colors are all seen then there are chills and fever.[30]

The concept of the *lo* does not change greatly through the treatises of the *Plain Questions* but the *ching* on the other hand undergo a substantial transformation to form the basis for the future version of the circulatory system. They originally were simply those unseen portions of the vessels, whether actually veins or arteries; however by the second century B.C. they had acquired added characteristics and were formed into virtually an interconnected system of their own.[31] (This is oversimplified: circulation throughout this period never can be reconciled into a complete integrated system and presents inconsistencies and unanswered questions. Yet historical trends can be discerned.) While the precise location of each of the *ching* is not given in the *Plain Questions*[32] there are three features that emerge which highlight the course of their conversion: (1) in a number of treatises they have some connection with various organs, (2) in several they are related to pulsation, and (3) in one or two they seem to be formed into a network.

First, references begin to appear to a *ching* of each of the five viscera (the heart, lungs, liver, spleen, and kidneys), most clearly expressed in the statement that, "The pathways of the five viscera all extend out as hidden (*ching*) passages through which course the blood and pneuma; if the blood and pneuma are not in harmony then the hundred illnesses transform and set in."[33] The heart is not the center of this system; rather it has its single *ching* just as do the other four viscera. There are both arteries and veins that could correspond to these five *ching* but at this stage it is not certain how, or if, they are connected with each other. Later, in the *Ling-shu* for instance, each of the twelve *ching* will be associated with an organ and the whole system will be further correlated with the five phases and system of correspondences; this probably does not occur before the first century B.C.[34]

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[30] *Su-wen*, 56.259. Cf. *Su-wen*, 57.260-261 where it is noted that the colors of the *lo* are seen to change but a distinction is made between yin-*lo* and yang-*lo*.

[31] In the *Ling-shu* the *lo* are referred to as "branches of the *ching*"; this is often cited in modern descriptions of the *ching-lo* system. For instance see Porkert, *Theoretical Foundations*, p. 303. This is not the case in the *Su-wen;* note the references to large and small *lo* vessels in 39.196 and 18.97.

[32] They are given in both the *Ling-shu* and *Chia-i ching*. For a modern description see Porkert, *Theoretical Foundations*, p. 197 ff.

[33] *Su-wen*, 62.305; cf. *Su-wen*, 57.261, 48.238, and 46.231.

[34] The completed system is discussed throughout Porkert, *Theoretical Foundations*. The five phases, or sometimes "elements," are earth, water, fire, metal, and wood.

The second feature, the relation to pulsation, marks an important switch away from the initial anatomical distinction between the portions of vessels to a physiological one as well. The most explicit statement connecting the pulse and the *ching* is found not in the *Plain Questions*, but in a later text, the *Nan-ching*, the *Classic on Difficulties:* "Each of the twelve *ching* has an active pulsation . . ."[35] Precursors of this concept are found throughout the *Plain Questions* and are intertwined with the third innovative feature involving the *ching*, the creation of an interconnected network of the twelve vessels. This interconnection is described in physiological rather than anatomical terms: "In the *ching* vessels there is an unceasing flow coursing throughout (or "In the *ching* the pulsation courses unceasingly"); it revolves unendingly in a circle."[36] The exact meaning of this can best be illustrated in the context of a brief discussion on the pulsation and physiology of circulation in the *Plain Questions*.

In Treatises I and II from the Han tombs there is no information on how the blood and pneuma circulate in the vessels; there, the vessels do not seem to be part of an interconnected system. The concept of circulation itself evolved during the Han dynasty and involves not only the creation of a connected system of the vessels but also an extension of the role of the pneuma and the introduction of the pulsation as a discrete entity. The origin and development of the latter concept is reflected in the terminology; the word that designates the pulse is the same as that for the vessels, *mo*. By the end of the Han this had created ambiguities since some passages may be interpreted as referring to the pulse or the vessel or both. In the *Plain Questions* the distinction is usually fairly clear although the relationship between the two, the pulse and the vessels, and the nature of the pulse alone is not described in great detail but rather must be inferred from statements made in passing.

Initially, there was no special designation for the pulse and when the rhythmic throbbing noted at various points, especially on the wrist, is mentioned it is not clear exactly what is responsible for it. When the throbbing is described as fast or slow, strong or feeble, the nature of the cause of the throbbing is somewhat equivocal; it seems to be related as much to the vessel walls as to its contents. This can be seen in the treatise, "A Discourse on the Onset of Pain," where there is first an explanation of how both blood and pneuma in the vessel can be affected by cold:

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[35] *Nan-ching* 1 (*I-pu ch'uan-shu* edition). On the *Nan-ching* see Okanishi Tameto, 1: 93-105.

[36] *Su-wen*, 39.195-6. Either translation is possible because of the meaning of *mo* as "vessel" and/or "pulse."

> If cold pneuma enters the *ching* (vessel) and delays there, it congeals and does not course through it. If it lodges on the exterior of the vessel then the blood (in the vessel) becomes diminished. If it lodges in the center of the vessel then the pneuma cannot pass through.[37]

It is then further stated that the vessel itself can be physically affected and this can be detected in its pulsation:

> If cold pneuma settles on the exterior of a vessel, then the vessel becomes chilled. If the vessel becomes chilled, then it becomes coiled up and shrunken. If it becomes coiled up and shrunken, then the throbbing of the vessel becomes coarse and rapid.[38]

As time passed, the cause of the throbbing became increasingly significant and when explanations for it were devised it was associated with movement imparted to the vessel not by the blood but by the pneuma.

> The vessels are the receptacle of the blood; if (their throbbing) is long[39] then the pneuma is well-regulated, but if short then the pneuma is diseased; if rapid, then there is a burning in the chest, if large then a disease is progressing . . . if irregular then the pneuma is failing, if minute then the pneuma is diminished.[40]

The exact relationship between the pneuma and the pulse is not well defined in this passage; the pulse or throbbing seems to reflect the condition of the circulating pneuma but it is not stated what the pulse itself is. Later, before 170 B.C., the pulse is described as if it exists as a separate entity, a form of pneuma, or the mode by which the pneuma circulates, travelling through the vessels like impulses of a wave. As such it is used as a means of diagnosis, its various qualities and quantities indicating specific illnesses.[41]

Once the pulse became regarded as a discrete entity, it was made the central element in the conception of circulation. This means that, in early Chinese physiological theory, it is not the blood and the heart that are central to circulation, it is the pneuma, as pulsation, and respiration that predominate. The heart in one treatise is said to give rise to the blood[42] and, in another, to control the blood in the vessels of the body[43] but the heartbeat itself is attributed to pneuma.[44] The pneuma, meanwhile, is associated with the inhaled air; thus, "All blood is connected with the heart; all pneuma is connected with the lungs,"[45] and "The five pneuma enter the nose and are stored in the heart and lungs."[46] It is further stated that the pneuma flowing in the vessels returns to the lungs and it is the lungs that control the pulsations.[47] Hence in descriptions of the circulation, the pulsation is related to, and dependent on, respiration, not the heart action:

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[37] *Su-wen,* 39.195.

[38] *Su-wen,* 39.196.

[39] "Long" describes a quality of the pulse as detected at the wrist.

[40] *Su-wen,* 17.85.

[41] E.g., *Su-wen,* 5.38-9, 18.96, 20.118, 28.153. The pulse is also used in *Shih-chi,* p. 105 (see above, p. 339), hence the date of 170 B C.

[42] *Su-wen,* 5.32. In *Su-wen,* 18.95 the heart is said to store the pneuma of the vessels while in 63.305 it stores the spirit (*shen*) and the liver stores the blood.

[43] *Su-wen,* 44.222.

> In man, with one exhalation the throbbing of the pulse is twice repeated and with one inhalation the pulse is again twice repeated. Inhalation and exhalation determine a (single) breath (during which) there are five pulsations (one being) inserted on account of excess breath.[48]

It is this pulsation and pneuma that are described in the passage above (p. 345) as an unceasing flow, as "revolving unendingly in a circle."

Thus by the end of the first century a picture of circulation has been formulated that involves the pneuma flowing through the twelve *ching* which in turn are now considered to be connected in some sort of network. However, this network is not centered on the heart nor does it involve any pumping action; in fact many anatomical and physiological details are missing. Part of the reason for this apparent vagueness is due to the influence under which the ideas evolved. The increasing emphasis placed on pneuma and pulsation in the course of the Han dynasty is accompanied by an increasing influence of cosmological theories prevalent during the same period. There are two particular strands of the then-current theories that influenced thinking about the physiology of the vascular system; one was of man as a microcosm of the universe and the other was the system of correspondences.

Man as a microcosm of the universe is pervasive in much of Chinese thought and is reflected in the yin-yang terminology of the vessels found as early as the tomb texts. The concept varies from, at its simplest, man being influenced by his surroundings to, at its most complex, man as effectively a miniature of the universe not being causally affected by outside forces but rather in a sympathetic resonance with them. The latter

[44] *Su-wen*, 18.96: "The large *lo*-duct of the stomach is called the '*hsü-li*.' It passes through the diaphragm and connects with the lungs, going out beneath the left nipple. Its motion relies on and corresponds to the pulsation of the generic pneuma."

[45] *Su-wen*, 10.63.

[46] *Su-wen*, 11.68.

[47] *Su-wen*, 21.122.

[48] *Su-wen*, 18.95.

aspect reaches its height during the first century B.C. with the writings of Tung Chung-shu and the system of correspondences. The five phases, the viscera, flavors, tastes, pulsations, musical notes, planets and constellations are all drawn up in a vast interrelated scheme of man and the cosmos.[49] (It is important to bear in mind that this system appears in only a few of the treatises of the *Plain Questions* and cannot be said to form the theoretical foundation of Chinese medicine until much later.)

Physiological theory thus evolves under the influence of cosmology and as it became more important in medical thought, purely anatomical factors tended to become less significant. Hence in the history of Chinese medicine, rather than progressing from a reasonable, although incomplete, knowledge of the body to a more detailed one by systematic dissection, the medical writers go in the opposite direction, under the sway of the cosmologists, to a less accurate picture. This is the background to the emergence of the twelve *ching* as the central element in the early vascular system. The *ching* vessels were formed into an interconnected network for the circulation of pneuma, detected as pulsation, on the basis of physiological theory, not on the basis of scientific anatomical investigation.

This discussion of the anatomy and physiology of the vascular system is intended only to illustrate those features that are pertinent to the development of the use of needles for bleeding and acupuncture; it has thus been inevitably cursory. However, it is sufficient to suggest a basis of a rough chronology of at least some of the treatises. For instance, even though precise dates cannot be ascribed, it is reasonable to assume that those treatises (with due regard to subject matter) in the *Plain Questions* that do not refer to the *ching* and *lo* but only to the *mo* vessels are comparatively early. Later chapters are those in which the *ching* and *lo* are more clearly differentiated and later still are those where the small branches, the *sun,* are noted.

Parallel with these developments is the increased use of the pulsation as a clearly defined entity and means of diagnosis. This is accompanied by increased emphasis on the pneuma and an increasingly rigid formalization of the system of twelve vessels with progressively more evidence of cosmology. It is possible at this point to assign at least some dates by reference to the *Shih-chi* biography of Ch'un-yü I (see above, p. 339). There the pulse is used as a diagnostic tool frequently and is described in considerable detail with many qualities and quantities. The *lo* are more important than the *ching*, the number twelve is not specifically mentioned, and there are no references to the system of correspondences in its complete form as found in some of the *Plain Questions* treatises. Thus the concept of circulation in the network of the *ching* and the system of correspondences probably entered Chinese physiological and anatomical theory sometime in the first, or first half of the second, centuries. This would place it in the same time period as the flourishing of much of the cosmological theory related to the system of correspondences and five phases in Chinese thought in general.[50]

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[49] See for instance Feng Yu-lan, *History of Chinese Philosophy,* 2 vols. (Princeton: Princeton University Press, 1953), 2: 7 ff.

Specific instances of features that date treatises will be given below but one general characterization of the whole of Chinese anatomical and physiological thought prior to the first century A.D. needs to be emphasized. It is strongly organic and mechanistic, not functional and what has been called synchronistic. The vessels are organic structures, not functional pathways as they were later to become, blood is a fluid, and pneuma is, certainly in part, a material substance, not the "energy" it was later to become. Pathology is described in terms of mechanistic causation, blocked vessels for instance, and aetiology usually has a physical basis, often some atmospheric factor. Cosmological theory does play a role in the treatises of the *Plain Questions* as has been noted; what is important, however, is that it does not form the basis of a comprehensive theoretical framework for the medicine of the fifth to first centuries. No such framework exists.

With this picture of the vascular system as a background it is now possible to trace the developments in the use of needles from bloodletting to acupuncture. Bloodletting was in use in China for many centuries before the Han dynasty. Miyashita Saburo has given examples from some of the earliest non-medical writings, the oracle bones dating from the mid-second millenium, at a time when disease was considered to be due to spirit-intrusion, perhaps of ancestors.[51] He suggests that the use of stone or flint needles for bleeding originated to effect the purely mechanical release of malevolent spirits that were causing the disease. In this regard, he notes similar practices of venesection found in other early or primitive societies.

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[50] In this brief sketch there are many aspects of circulation that have not been discussed, the role of Taoist thought for instance. On that point, Liu Po-chi lists several chapters of the *Su-wen* showing Taoist influence, *Chung-kuo i-hsueh shih*, 1: 23.

[51] Miyashita Saburo, "Chūgoku kodai no shippei kan to ryōhō," *Tōhō Gakukō*, 1959, *30*· 235.

There is very little evidence of the type of medical practices current during the next thousand years, between the time of the oracle bones and the fourth or fifth centuries when the treatises from the Han tombs may have been composed. In those treatises bleeding is only rarely mentioned but the use of moxabustion is quite common as are assorted decoctions, hot compresses, ointments, and poultices.[52] Stone needles were used for treatment of purulent swellings and abscesses and once to "open a vessel" but there is no indication of the purpose for the latter operation.[53] There are only scattered references in these texts to magico-religious procedures, primarily incantations as part of some treatments.

The major source of information on early bloodletting is in the treatises of the *Plain Questions*. The instruments used seem to have been needles rather than knives, but there are very few descriptions of the shape or size of the needles themselves. Metal needles became increasingly prevalent in the Han although it appears that stone or flint needles continued to be used, especially for surface surgery like the lancing of boils.[54] In three of the treatises there are references to the "nine needles," a term applied to nine different shapes of needles ranging from virtually a thin wire to a small scalpel; the number nine has a cosmological significance and will be discussed below.

The passages in the *Plain Questions* on bloodletting are explicit; the practitioner is instructed to stick a needle in a given site so that blood flows out. The locations for bleeding vary slightly among the treatises but in the great majority of cases are specifically sited on the vessels, usually the superficial ones. The typical formula is, "Needle the foot major-yang vessel (for instance) so that blood will flow out."[55] Sometimes a specific superficial vein is described, for example the needle is to be stuck in the "transverse vessel (on the dorsum) of the foot" and in two cases an artery is described, the "pulsating vessel about the ankle."[56] The two vessels beneath the tongue are given as the site in one treatise.[57] The most frequently named locations are on the vessels in the popliteal fossa.[58] Next are the vessels on both the medial and lateral surfaces of the ankles. The elbows and arms are not specified.

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[52] See throughout, "Ma-wang-tui Han-mu ch'u-t'u i-shu shih-wen, 2," *Wen-wu*, 1975, *9:* 35-48.

[53] *Wen-wu*, 1975, *6.* 6.

[54] Gold and silver needles have been discovered in Han tombs; see Anon., *Chen-chiu shih-hua* (Hong Kong: I-yao wei-sheng, 1977), p. 15.

[55] See *Su-wen*, 36.184 ff. and 41.203 ff. for examples.

[56] *Su-wen*, 36.287.

[57] *Su-wen*, 36.188.

[58] *Su-wen*, 41.203 ff.

The *lo* vessels are named as locations but the *ching* are specified by name very rarely. However, since the *ching* cannot be seen, some of the sites for needling do lie on what could be their courses; for instance, the space between the eyebrows and the space between the fingers and toes. One treatise does list many locations around the finger and toe nails that are now associated with both *ching* and *lo*.[59]

The most important exception to the vessels as a site for bleeding are the scattered references to points called *shu,* seemingly spots located at regular intervals on the back along the spinal column.[60] There may also be other locations for *shu* but interpretation of the term is problematical. It will be discussed further below.

In turning now from the locations of bleeding to the conditions for which it was used and its supposed effects or purpose, the contents of the various treatises of the *Plain Questions* are best considered separately. In one of the earliest to deal with the subject, "Needling Applied to Distress in the Abdominal Region," there are no references to pneuma, the *ching* are not mentioned, and there is no indication of the five phases or system of correspondences.[61] Disease is discussed in the same terms as in the tomb texts, that is, syndromes are associated with each of the vessels. Symptoms, often localized pain, are listed which, with some exceptions, tend to lie along the course of a vessel and are said to be caused by conditions in the vessel and hence are to be controlled by treating the vessel. Disease is thus closely related to the vascular system but as yet the initial cause of the diseased condition in the vessel is not stated, only the resultant symptoms. They are treated by causing bleeding from the vessel:

> (A disease of) the minor-yang (vessel) causes the abdominal region to be painful as if the skin were being pricked by a pin. Initially (the patient) is not able to bend down, nor then to look up, and then he cannot twist around. Needle the minor-yang (vessel) at the end of the *ch'eng* bone so that blood flows out. The *ch'eng* bone is the bone that begins alongside the outer surface of the knee [presumably the fibula]. In summer blood should not appear.[62]

Diseases of other vessels are similarly described in this treatise. In most cases, as above, the needle is applied to the vessel said to be the site of the disease rather than at the site of the pain, but what the bleeding is supposed to accomplish is generally not stated. The site of needling, it is important to note, is designated by superficial anatomy, not by the name of some point lying on the vessel. (Cf. below, p. 364).

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[59] *Su-wen,* 63.314.

[60] *Su-wen,* 24.135; also 36.187 and 16.79.

[61] *Su-wen,* 41.203-210.

[62] *Su-wen,* 41.203.

The only indication in this treatise as to the purpose of bleeding is hinted in passing; once when injury causes a vessel to be torn and blood to stagnate which is then to be drained,[63] and once where any repletion of blood in a vessel is to be observed and the excess expelled.[64] One feature of the use of needles is that there is already evidence of the influence of cosmological thought, of man as a microcosm of the universe: the amount of blood let is dependent on the season (note the last line of the above quote) and the number of needlings may be determined by the time of the month.[65] However this is not widespread, it is certainly not a general rule, and it is not found in conjunction with any formulation involving the system of correspondences or five phases. Many passages make no reference to any cosmological ideas:

> (A disease of) the dispersed vessel[66] causes abdominal pain; the pain radiates to the shoulder and the vision becomes dimmed. Periodically there is urinary incontinence. Needle the dispersed vessel in the knee between the flesh and the tendons and the vessel transversing the outer corner of the popliteal fossa so that blood flows out. When the blood changes (color from dark to bright red) then stop.
>
> (A disease of) the dispersed vessel may cause pain in the abdominal region like that of the tightening of a belt that is continually cutting it in half. (The patient) may tend to be easily alarmed. Needle the dispersed vessel in the center of the popliteal fossa where (the vessel) is knotted like grains of millet. When needled, the blood that shoots out will be dark; when it appears bright red then stop.[67]

Further examples of bloodletting are found in another treatise, "Needling Against Intermittent Fever"; here a specific set of feverish diseases is described and more detailed symptoms are given. The disease is again associated with the vascular system in most cases:

> Intermittent fever[68] of the foot minor-yang (vessel) causes pain in the abdominal region and a heavy feeling in the head. A chill begins in the back. First there is the chill and then there will be a very intense fever. As the fever ceases, there will be perspiration and the distress will end. Needle in the popliteal fossa so that blood flows out.[69]

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[63] *Su-wen,* 41.203.

[64] *Su-wen,* 41.206.

[65] *Su-wen,* 41.210, cf. 16.79 and below p. 355.

[66] *Chieh-mo,* see *Chung-kuo i-hsueh ta-tzu-tien,* 3: 3690.

[67] *Su-wen,* 41.205.

[68] See Yü Yun-hsiu, pp. 131 and 235. Also Nathan Sivin, *Chinese Alchemy: Preliminary Studies* (Cambridge: Harvard University Press, 1968), p. 302.

[69] *Su-wen,* 36.184.

"Intermittent fever" may also be located in the various organs, the liver and lungs for instance, but the site for bleeding is still on one or another of the vessels.[70] The one exception to the vessels being the site for needling is found with the use of the *shu* points but the meaning of the passage is unclear.[71] As in the previous treatise, there is some indication of the influence of concepts of the microcosm and macrocosm but it is not pervasive. More important is both the mechanistic and organic nature of thought reflected in many passages:

> With the onset of intermittent fever, the body will immediately become feverish. Needle the pulsating vessel above the ankle. Open the hole (made by the needle) so that the blood flows out. Chills will then set in.[72]

Although it is not stated in this treatise, there are references in others to an excess of blood being related to fevers and this may be the rationale behind the bleeding; it is suggested by the statement that "chills will set in" as blood is lost. There is a further suggestion that pain can be a major factor in determining the site of bleeding since it may be the sign used to indicate which of the vessels is afflicted by the feverish illness. In the first half of the following passage localized pain dictates the spot for needling and in the second half the vessels to be needled are those whose course coincides with a site of pain:

> In the use of needles for intermittent fever one must first ask (the patient) where the illness initially appeared and then needle there first. If the head first became painful and then heavy-feeling, first needle the top of the head, then the space between the two eyebrows and the midline of the forehead so that blood flows out. If there was first pain in the nape of the neck and the back, needle there first. If first there was pain in the abdominal region and spinal column, then first needle the center of the popliteal fossa so that blood flows out. If first there was pain in the hands and arms, then needle the hand minor-yin and splendor of yang (vessels) between the ten fingers first. If first the feet and shins ache and are painful first needle the foot splendor of yang (vessel) between the ten toes so that blood flows out.[73]

This particular treatise on needling describes many varieties of intermittent fever and also gives the initial cause of the ailments; they are ascribed to some wind factor which has entered the body and lodged in various places, but beyond that there is little on physiology or pathology. Because the needles are applied to the vessels, and disease is consistently associated with the vessels, it may be that bleeding is intended to remove the noxious element, wind here, that has infected the vascular system; that is, needling is directed at removing the cause of the illness by removing the blood in which it is lodged. This idea is supported by a different treatise in which the disease-causing agency is said to enter into the *ching* and "lodge in the blood of the vessels."[74] Again, however, this should not be construed as a general rule for the whole of the *Plain Questions;* as will be seen below the whole concept of disease undergoes changes during the Han dynasty.

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[70] E.g., *Su-wen*, 36.186.

[71] *Su-wen*, 36.187.

[72] *Su-wen*, 36.187.

[73] *Su-wen*, 36.188-9.

Whatever the disease, in some cases bleeding was a severe treatment; needling could do considerable tissue damage. For instance in a description of an intermittent fever brought on by wind, "When the bones in the shin[75] are extremely painful and cannot be touched, the term for this is 'foot marrow disease.' With a chisel-shaped needle cut the bone so that blood flows out."[76] There is another treatise, "A Discourse on Restrictions of Needling,"[77] that gives examples of possible injuries, lists contraindications, and cautions against damaging the vital organs.

The use of needles so far described has been primarily to induce bleeding and there has been no reference to any effect on pneuma which also flows through the vessels of the body. Pneuma was important in medical thought from an early date and is frequently mentioned in the texts from the tombs,[78] as well as figuring prominently throughout the *Plain Questions*. What will now follow are passages from a series of treatises which will indicate the chronological sequence of its gradual replacement of blood as the key element in the use of needles.

The treatise "A Discourse on Converse Needling," is of a later date than those on bleeding and fever cited above, referring to the small *lo* and *sun* vessels and the *lo* in terms of yin and yang. In pathology there is another departure. Illness is still referred to in relation to the vessels but now the idea of a pathogen, a disease producing agency, is introduced with the term *hsieh,* "pathogenicity."[79] The pathogenic agency is often an atmospheric factor; it need not be specified but in all cases it is a strictly mechanistic, non-supernatural, concept: disease is a cause and effect phenomenon, an unhealthy state brought about by the invasion of an external factor. The treatment may still be by bleeding; for example,

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[74] *Su-wen,* 27.151.

[75] See *Chung-kuo i-hsueh ta-tzu-tien,* 4: 4220.

[76] *Su-wen,* 36.187.

[77] *Su-wen,* 52.247-50.

[78] See e.g., *Wen-wu,* 1975, 6· 5, and throughout *Wen-wu,* 1975, 9. 35-48. Although pneuma does appear in these texts it is not connected with the use of needles.

[79] On *hsieh* see above, note 26. In the tomb texts the term does not appear even though disease was related to the various vessels

> When a pathogenicity lodges in the foot minor-yin vessel, it causes sudden heart pain, violent swellings, and fullness of the chest, flanks, and limbs. (In order that) there be no accumulation (of blood?) needle anterior to the *jan* bone [the internal malleolus] so that blood flows out, for (the time equal to) the duration of a single meal.[80]

Disease remains closely associated with the system of vessels; the system is the route taken by the pathogen through the body.[81] While bleeding continues to be practiced, the use of needles becomes more complicated in this treatise by being said to affect the flow of the pneuma in the vessels. One is instructed, as before, to needle the vessels, here usually the *lo* portion and often around the fingernails, but instead of being told simply to cause blood to flow, there are to be a set number of superficial incisions.[82] The number of incisions is determined by the time of the month, and that in turn on the basis of the phases of the moon. On the first day of the new moon there should be one incision, on the second day two, and so on to the sixteenth day when there should be fourteen, then back down to one during the last two weeks of the month.[83] The reason for this is,

> In using needles, one should be in accord with the increase or decrease of pneuma (reflected by the phases of the moon) and on that basis make the proper number of incisions. If the number of incisions surpass the number of the day, then there will be a loss of pneuma, and if the incisions do not attain the number of the day then the pneuma will not be purged . . .[84]

Here it is the pneuma, and not the blood, that is to be affected. There is an indication of the influence of the belief in man as a microcosm of the universe in which the pneuma within his body is in resonance with the pneuma of the world, here reflected in the phases of the moon. Thus the connection between pneuma and needling is found in the context of a cosmological doctrine that was not in evidence with the use of needles strictly for bleeding. The use of needles has taken on a new aspect; blood is not important, rather the pneuma that flows in the vessels with it is.

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[80] *Su-wen*, 63.314.

[81] Compare the discussion on circulation in the first part of this paper where an example was given of the course of the pathogen.

[82] *Yu;* this term refers to cuts made by knife wounds in the tomb texts (*Wen-wu*, 1975, 9· 36) but it is not clear how much bleeding is involved. Cf. *Chung-kuo i-hsüeh ta-tzu-tien*, 3: 2651.

[83] *Su-wen*, 63.315.

[84] *Su-wen*, 63.315; cf. 26.146 and 16.79.

Nor is the importance of pneuma limited to a cosmological context; the same treatise has a brief discussion of the use of needles on the *ching* and *lo* vessels in which the idea of an excess or insufficiency of pneuma due to a disease process is introduced. The purpose of needling is then to restore a proper equilibrium in the vessels. This concept, of affecting an overabundance or lack of pneuma as well as blood is the basis for the fundamental shift from bloodletting to what is now acupuncture.

To recapitulate briefly, up to this point in the discussion, the primary purpose of the use of needles has been to effect removal of blood; this may have been directed towards removing the cause of an illness since the cause was conceived of as an invading pathogen which could lodge in the vessels. A shift can then be discerned in the course of the *Plain Questions;* over its period of compilation blood becomes less frequently mentioned and the attention is focused on the pneuma and the need to affect it to achieve a balance in the vessels between the blood and the pneuma, not simply to remove the blood from the body. The transition from an earlier stage to this later one is not a straightforward unfolding but involves considerable overlapping and the introduction of new concepts in its course. In fact bleeding will remain one feature of the use of needles; in a few cases it is found even today.[85] It is also likely that even when not stated as the purpose, the use of needles was often accompanied by bleeding from resultant tissue damage.[86]

Disease continues to be centered in the vessels; pathogenic invasion remains the primary aetiology but the pathology is now more clearly explained. Blood and pneuma must be in harmony and if they are not, illness exists; when there is an excess or lack of one or the other it is referred to as a plethora (*shih*) or a deficiency (*hsü*). The treatise, "A Chapter on Blood, Pneuma, the Physical Body and Psyche," illustrates this concept and the use of needles to affect both blood and pneuma.[87] The plethora or deficiency is brought about by the invasion of a pathogenic pneuma, again usually an atmospheric factor, as in other treatises.[88] The effect is centered on the vessels and the needling is also applied to the vessels:

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[85] For example in ear acupuncture; see *Erh-chen* (Shanghai, 1972), p. 48.

[86] See for example the biography of Kuo Yü in the *Hou-han-shu,* 112B (*Lieh-chuan* 72B).

[87] *Su-wen,* 24.134-6.

[88] Similar conditions are reported in the tomb texts but it is significant that they were not treated with needles. See *Wen-wu,* 1975, *6*· 1-6.

> Now, knowing which of the hand or foot, yin and yang (vessels) are afflicted, in general to treat the illness one must first eliminate the (diseased)[89] blood then one will have eliminated the loci of the affliction. Determine that which is wished (?) and afterwards purge the excess and tonify the insufficiency . . .[90] Needle the splendor of yang (vessel) so that blood and pneuma flow out; needle the major-yang (vessel) so that blood and malevolent pneuma flow out; needle the minor-yin (vessel) so that pneuma and malevolent blood flow out.[91]

Both elements, blood and pneuma, circulating in the vessels are affected and the purpose of the needling is two-fold; first to remove noxious elements which are causing the plethora and hence disease, and secondly to restore the proper equilibrium. The implication here is that the presence of a pathogenicity is no longer considered the equivalent of a diseased state; rather it affects the normal equilibrium of the body and that in turn produces symptoms that equal a disease state.[92]

It is in restoring the proper equilibrium, the norm, that the use of needles is taken a step further: the passage above indicates that both excess blood and pneuma can be removed, that is, a plethora eliminated. But it is also possible to use needles to rectify a deficiency, a technique referred to as *pu,* "tonifying"; again both blood and pneuma can be affected. In the treatise "A Discourse on Harmonization of the *Ching* Vessels," there is an example of blood being "tonified" as well as purged:

> If there is an excess of blood then there will be anger; if there is an insufficiency then there will be fear. The blood and pneuma will not then be equalized; (that being the case) how can the five viscera be settled? . . . If there is an excess of blood then purge the replete *ching* vessels so that their blood flows out. If there is an insufficiency, then observe the deficient *ching* and insert the needle into the center of the vessel. Leave it for a long while and watch. When the vessel swells (or when the throbbing increases)[93] then quickly take out the needle. Do not let any blood seep out.[94]

The purely mechanistic, organic concept in the above paragraph is notable. This paragraph indicates where the use of bleeding takes a unique turn in China since it now is no longer a matter of only removing blood from the body but using needles to affect local flow and what was thought to be the balance in the vessels. Exactly the same principle is applied to the pneuma in the same vessels; just as needling could release it so too can the pneuma be locally increased by tonifying:

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[89] According to Wang Ping's commentary blood here refers to an excess of blood observed in the vessels.

[90] *Su-wen,* 24.135.

[91] *Su-wen,* 24.136.

[92] To see how this concept compares to Western medicine see Sir Henry Cohen, "The Evolution of the Concept of Disease," in Brandon Lush, ed., *Concepts of Medicine* (Oxford: Pergamon Press, 1961), pp. 159-169, and Owsei Temkin, "The Scientific Approach to Disease: Specific Entity and Individual Sickness," in A. C. Crombie, ed., *Scientific Change* (New York: Basic Books, 1963), pp. 629-47.

[93] The text has "*mo ta,*" where *mo* refers to the vessel and to the pulse.

[94] *Su-wen,* 62.307-8.

> If there is an excess of pneuma, then there will be coughing and panting to raise up the pneuma; if there is an insufficiency then the breathing is regulated so there is little pneuma . . . When the pneuma is in excess then purge the deep-lying conduits[95] without damaging the *ching* (vessels) and without causing their blood to flow out and without their pneuma seeping away. If there is an insufficiency then tonify the deep-lying conduits without their pneuma flowing out.[96]

The treatise then explains the technique for needling in order to increase or tonify the pneuma rather than expel it:

> Press down and rub without relaxing (the pressure of the hand), then withdraw the needle and observing (the patient) say, "I am going to insert (the needle) deeper." (The depth of insertion) must be altered to suit the patient.[97] The vital pneuma[98] had been suppressed and will now return (to the diseased area). The pathogenic pneuma is then dispersed and has no place where it can settle. This (pathogenic) pneuma will then seep out through the pores and healthy [lit., "true"] pneuma will take its place.[99]

Two features are notable in the above three passages; first the practice of affecting pneuma with needles is not fundamentally different from that of affecting blood. Second, the operation need not be construed in functional and non-causal terms but rather involves an organic substrate, the vessels, and material substances, blood and pneuma.[100] Much of the treatise can be understood best in a quite literal sense, as referring to physical procedures and substances:

> As for purging a plethora, when the pneuma is overabundant then insert the needle. When the needle is inside together with the pneuma then by opening the entrance [i.e., the hole made by the needle] as if clearing a doorway, the needle and the pneuma will both come out. The vital pneuma will not be injured and the pathogenic pneuma will descend: the gates to the exterior are not closed and thus

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[95] *Ching-sui*, it is not clear what vessel is meant. See *Chung-kuo i-hsüeh ta-tzu-tien*, 3: 3570.

[96] *Su-wen*, 62.307.

[97] The meaning of this phrase is not clear but it may refer to the weight and build of the patient.

[98] *Ching-ch'i*; for a somewhat different translation see Porkert, *Theoretical Foundations*, pp 176-80.

[99] *Su-wen*, 62.307.

[100] That Chinese medicine emphasizes function as opposed to substrate is certainly true but not throughout the whole of its history. For a discussion of the functional aspects see Manfred Porkert, "The Intellectual and Social Impulses behind the Evolution of Traditional Chinese Medicine," in Charles Leslie, ed., *Asian Medical Systems: A Comparative Study* (Berkeley: University of California Press, 1976), pp. 63-76.

> the affliction comes out through them. If one agitates (the needle) and enlarges its pathway as if clearing a road, this is termed a major purging. One must cut (the skin) in withdrawing (the needle); a large amount of pneuma then goes out.[101]

It is evident in this treatise that pneuma and not blood is now of prime importance. Throughout the *Plain Questions* the procedures for needling reflect the physiological concepts of circulation and as the latter changed, the changes were reflected in accretions to the techniques of needling. For instance in the first part of this paper the development of the concept of pulsation and its relation to breathing and pneuma were outlined. A related development can now be seen in the use of needles; in a later treatise, "A Discourse on the Separation and Union of Health and Pathogenicity," a similar connection is made between the time of needling and respiration.

> When (the patient) inhales then insert the needle; do not let the pneuma flow in a contrary direction.[102] Leave (the needle) motionless for some time; do not cause the pathogen to spread. When again he inhales then rotate the needle: this is done in order to obtain the pneuma. Wait for exhaling and then slowly draw out the needle; when the exhaling is completed then remove the needle. A large amount of pneuma will then go out. Thus the term for this is "purging."[103]

The close connection between needling and the vessels is thus seen to involve not only the anatomical aspect, the vessel as a site for the needle, but increasingly the physiological one; the concept of circulation provides the rationale for a given technique.

As with physiology, so too with pathology; as the latter was postulated in greater detail the connection between it and needling can be better defined. Needling is generally directed not against symptoms but is intended to restore a normal condition upset by a surplus or insufficiency of pneuma as a result of invasion by some atmospheric pathogenic agency. While the picture in the *Plain Questions* is far more complex than this statement would suggest, a specific case can serve to provide one illustration of the combination of aetiology, symptoms, pathology, and treatment found in the use of needles. In the treatise "A Discourse on Needling and the Psyche," a plethora is said to result in fevers and a deficiency in cold or chills; a plethora in turn is the result of pneuma entering the body and a deficiency the result of it leaving.[104] This pathology is described along with treatment in the treatise, "Needling Explained":

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[101] *Su-wen*, 62.311.

[102] *Fan;* pneuma could flow in either direction through the vessels. The same term is found in astronomy where it describes a change in direction of a planet. Ho Peng Yoke, *The Astronomical Chapters of the Chin Shu* (Paris: Mouton, 1966), p. 35.

[103] *Su-wen*, 27.149-50.

> If one needles a deficiency, then it is made plethoric: when the needle is inserted it will create warmth. When the pneuma is replete then there is warmth.[105]
>
> When there is a fullness and it is drained off, then as the needle is inserted there will be chills. When pneuma is deficient then there are chills.
>
> If there is an accumulated stagnation then eliminate it: Cause the malevolent blood to flow out. If the pathogen is ascendant then create a deficiency: withdraw the needle but do not press (the wound). To create a plethora the rule is slowness and rapidity: slowly withdraw the needle and rapidly apply pressure (to the wound). To create a deficiency the rule is rapidity and slowness: rapidly withdraw the needle and slowly apply pressure to the wound.[106]

The above series of selections indicate that the technique for needling pneuma is similar to, and probably derived from, the technique of bloodletting. Not only does it involve the vessels but also the emphasis on physical manipulation and applying pressure to the wounds to deliberately prevent or control the loss of blood underscores the close relationship. Furthermore the effect of needles on pneuma is explained in the framework of anatomical and physiological thought that connects it with the blood. There remains, however, one addition that is required before the shift away from simple bloodletting is complete and that is the system of hundreds of sensitive points on the skin specified as sites for needling. This addition can be seen in part as a manifestation of the influence of cosmology.

The shift from an emphasis on blood to one on pneuma is accompanied by a concurrent increase in the number of references to cosmological theory, especially man as a microcosm of the universe. In the treatise, "A Discourse on the Separation and Union of Health and Pathogenicity," pneuma within the body is said to be influenced by the pneuma in general.[107] The effect that this type of thinking had on concepts of circulation has already been seen, but it further influences the whole concept of disease and treatment. The vessels are compared to the rivers of the earth and the course of the constellations of the heavens; a pathogen entering the vessels is compared to the effect of atmospheric factors, cold, heat, and wind, on the waters in rivers. That is, just as cold causes the water in rivers to freeze so it is said to cause the blood in the vessels to congeal.

[104] *Su-wen,* 53.252.

[105] Warmth, *je;* the same word can mean heat, warmth, fever, or local inflammation.

[106] *Su-wen,* 54.252.

[107] *Su-wen,* 27.

The wind's effect of stirring up the waters is similar to its effect on agitating the pulsation within the vessels.[108]

In this particular treatise there is even a specific criticism of earlier mechanistic approaches to needling and a claim that it is necessary to adopt a resonance concept:

> Now, the use of needles in recent years has been as follows: when there is a deficiency, then make it plethoric; when there is fullness then drain it. This is what is known by the whole mass of common artisans. But if one is to be a master he will imitate Heaven and pattern himself on earth. His actions will be in accord and resonate (with the macrocosm). He will be in harmony with it like an echo (follows sound); he will follow it like a shadow.[109]

This passage is important since the approach it criticizes is just that found in many treatises of the *Plain Questions;* it underlines not only the diverse nature of the text but also illustrates how a chronology of the treatises can be deduced.

With the influence of such concepts the use of needles takes on a different meaning that was not directly derived from earlier practices. Rather, these concepts appear in part to be from an external theoretical structure which is suddenly imposed on a body of medical thought and practice. The result of this imposition is to place the use of needles in a cosmological framework rooted in numerological correspondences:

> The Emperor said, "I have heard that the nine types of needles resonate above with Heaven, earth, the four seasons, and yin and yang. I wish to hear of this scheme." Ch'i Po replied,[110] "One is Heaven, two is earth, three is man, there are four seasons, five sounds, six notes, seven constellations, eight winds, and nine fields.[111] Man's form responds to these and each of the needles has that for which it is suited. Therefore there are nine needles. Man's skin corresponds to Heaven; man's muscles correspond to earth; man's vessels correspond to humankind . . . Man's exhaling and inhaling pneuma correspond to the winds; man's nine orifices and 365 *lo* correspond to the fields. Thus the first needle is for the skin, the second needle is for the muscles, the third needle is for the vessels, the fourth needle is for the tendons, the fifth needle is for the sounds . . .[112]

What is most notable here is the contrast with the passages translated earlier in this paper. The mechanistic, recognizable organic concepts are submerged under a system of cosmological correspondences which would not have evolved from the body of data accumulated through the practical use of needling. The number nine is most likely imposed on an already existing set of needles; that is, there was a loose range of types of needles (three are mentioned in the *Plain Questions*) but they are grouped together as nine because of the cosmological significance of the number, not because there happened to be that many.[113]

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[108] *Su-wen,* 27.150.

[109] *Su-wen,* 27.149.

[110] Many of the treatises of the *Su-wen* are in the form of a dialogue between the legendary Yellow Emperor (traditional dates, 2698-2598 B.C.) and his minister Ch'i Po.

[111] On this type of numerology see Joseph Needham, *Science and Civilization in China,* 7 vols. (Cambridge: Cambridge University Press, 1954-), 2: 216 ff.

[112] *Su-wen,* 54.254.

That is one example of the interaction and mutual influence of a cosmology with the existing techniques of needling and related medical practices and serves as an introduction to the appearance of the system of sensitive points. In most of the treatises the sites where needles are to be stuck are described either in terms of some topographical features or are only localized on a given vessel. (E.g., needle the foot major-yang vessel or the popliteal fossa, etc.) But in two treatises of the *Plain Questions* a complex system of 365 loci called *hsüeh*, "openings," where the needles are to be applied is introduced.[114] It is comprised of a series of 365 points located on the network of vessels and through which pneuma, not blood, can be affected. In the first of the two treatises where the system is discussed, "A Discourse on Pneuma Openings," the first sentence is, "I have heard that there are 365 pneuma-openings which correspond to one year."[115] Thus the system from its introduction is associated with the cosmological theory of the microcosm and macrocosm.

The openings are described as, for instance, fifty openings for the viscera, fifty-nine "heat openings," and fifty-seven "water openings." Then a whole series is given in anatomical terms; there are two openings on the eyebrows, twelve on the chest, and so on. The list closes with the statement that, "In general, the 365 openings are the means of placing the needles."[116] But even though the *ching*, *lo*, and *sun* are mentioned in this chapter as well as the blood flowing in them,[117] there is no specific indication of the relationship of the 365 openings with the vessels.

A more consistent presentation of the 365 is found in the treatise, "A Discourse on Pneuma Receptacles," in which the essential link between the vessels and the openings is made explicitly:

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[113] See *Su-wen*, 36.189 where a chisel-shaped needle is mentioned and *Su-wen*, 36.187 where a "middle" ? (*chung*) needle is used. *Su-wen*, 12.70 and 13.73 mention a fine (thin) needle.

[114] For a modern definition of this term see *Chung-kuo i-hsueh ta-tzu-tien*, 1· 948.

[115] *Su-wen*, 58.261.

[116] *Su-wen*, 58.272.

[117] *Su-wen*, 58.272-3

> The places from whence the pneuma emerges from the foot major-yang vessel: there are 78 openings. There is one on the top of each of the two eyebrows. One is located three and one half inches (*ts'un*) from the hairline to the nape of the neck . . .[118]

There is a further description of fifteen points arranged at intervals along the spinal column, eleven in some way related to the viscera but not listed anatomically, and six points arranged on the leg between the knee and the little toe. Similar pictures are given for several other vessels but not all twelve. There are no names for the openings, they are simply enumerated. (In later texts each point has a name, cf. below p. 364). It is also notable that the openings in this treatise are placed at regular intervals while the sites for needling in most of the treatises are concentrated in a few areas.

The series of openings is introduced into the *Plain Questions* as a complete system; there are suddenly 365 openings presented as an integrated whole. Yet the scheme is not particularly uniform: the total is made up of some points given as anatomical locations and others, the majority, referred to as *shu* and connected with organs or one of the five phases. This may mean that while the theoretical framework, the number 365 and arrangement at regular intervals, is part of a doctrine of the microcosm and macrocosm and numerological correspondences, it incorporated diverse elements that had evolved independently over the preceding decades within the various bodies of medical thought. The *Plain Questions* does provide evidence of a number of such precursors that later became components of the completed system. The evolution of the overall system is very complex and it is probable that several lines of development were current at the same time. The comments made here are intended to serve only as preliminary observations.

Mention has already been made of the *shu* points lying along the spinal column; these are included in the 365 and may have provided one precursor for the cosmologists.[119] In two treatises, both heavily influenced by the system of correspondences, there are references to needles being put in specifically named points. A condition of chills is to be treated in the "wind-storer": "With a great wind (which has caused a disease), the neck is painful; needle the wind-storer. The wind-storer is on the top-most vertebra."[120] The same treatise also refers to a point called "*i-hsi*" that is said to be on the lower back: "Clasp the side of the backbone three inches away and press. This causes the patient to exhale (with the sound) 'i-hsi.' "[121]

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[118] *Su-wen*, 59.273.

[119] The term "cosmologists" is used only as convenient shorthand, as is "cosmology." The intellectual history of the Han dynasty is complex and the distinction between scientific, philosophical, and medical thought is not categorical.

In the treatise, "A Discourse on the Water and Heat Openings," named openings are used for needling specific diseases:

> The "large shuttle," the breast *shu,* the "vacant pot," and the back *shu:* these eight [there are two of each] are whereby one purges (excess) heat within the chest. The "pneuma-path," the "three *li,*" the "major emptiness," and the upper and lower angles: these eight are whereby one purges a fever within the stomach. The "cloud gate," the *o* bone, the center of the knee, and the "marrow emptiness": these eight are whereby one purges heat from the four limbs.[122]

The contrast with earlier passages can readily be seen; whereas before topographical positions on one or another of the vessels were named as sites, by the time of this treatise individual points are named. The names suggest surface anatomical descriptions in part and functional descriptions in part.

While the exact chronology of the introduction of the 365 openings and the merging of disparate elements like the names of points and specific vessel associations remains open, there is no doubt that the system as a whole is a late one: the treatises in which it appears are influenced by advanced cosmological doctrines and also refer to a complete network of *ching* and *lo* vessels and the smaller branches, the *sun*. The system represents a further step in the use of needles but unlike the first transition from bleeding to affecting pneuma, it requires more than an extension of existing theory and practice. It represents an attempt at a formalization designed to satisfy a philosophical criterion, and is not a natural continuation of a purely medical tradition.

The role of the system of points in the medicine of the *Plain Questions* contrasts sharply with its role in modern acupuncture, where it has become central to the entire theoretical structure; today the vessels have lost their association with the vascular system and are now interpreted, in the West at least,[123] as functional pathways whose main purpose is to link the openings, to provide a network for them. The openings are the key element in the entire modern version. Because of their importance it is instructive to note what the early Chinese texts say about the origins of the use of needles and their general applications. In no case is there any reference to the 365 openings.

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[120] *Su-wen,* 60.289.

[121] *Ibid.*

[122] *Su-wen,* 61 302-3.

[123] Modern Chinese texts continue to refer to blood and pneuma flowing through the *ching* and *lo* systems even though they separate this system from the vascular one See Nanking College of Traditional Medicine, ed., *Chung i-hsueh kai-lun* (Peking, 1959), p. 16, and Shanghai chung-i hsüeh-yüan, ed., *Chen-chiu ching-lo hsueh* (Hong Kong, n.d.), p. 2.

The third century A.D. author Huang-fu Mi, whose text deals mainly with acupuncture, briefly discusses the early history of medicine in his introduction. Although he specifically refers to acupuncture and to the vessels, blood and pneuma, he makes no mention of the openings.[124] His contemporary, the Imperial Physician Wang Shu-ho makes no mention of them either in an introductory outline of the developments in medicine.[125]

The biography of Ch'un-yü I in the *Shih-chi* is especially interesting since it refers to the early history of medicine and to some general principles of teaching and practice.[126] Ch'un-yü I discusses his own studies and the methods of the ancients. Needles are used primarily to affect the pneuma although bleeding is also found.[127] He says that when he teaches medicine he explains the *ching* vessels, the location of the *shu,* and when it is suitable to use the stone needles and where the places are to apply needles and moxa.[128] In the 25 case histories that are included in his biography, when acupuncture is used it is applied to a given vessel as it was in most of the *Plain Questions*. The only indication of points are two references to "places" (*so*) on one or two of the vessels. The term *hsüeh* (openings) does not appear nor do specific names of points. Thus even as late as the 170s B.C. the system of 365 openings had still not been established, or if it had, had yet to be widely accepted.

In some of the treatises of the *Plain Questions* there are short discussions of the medicine of the ancients, usually couched in terms of mythical sage rulers of a mythical golden age. The treatise, "A Discourse on Transporting Essence and Transforming Pneuma," states that for the treatment of disease the ancient sages needed only to invoke the gods while today it is necessary to use needles for external diseases and medications for internal ones. The treatise claims that the ancients set up the system of correspondences and five phases but still there is no mention of the 365 openings.[129]

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[124] *Chen-chiu chia-i ching,* Preface.

[125] Wang Shu-ho, *Mo-ching* (Taipei: Hsin-ya, 1969), Preface.

[126] See above, p. 339 and note 8.

[127] See Bridgeman, "Médecine," p. 35 (Observation 11), *Shih-chi,* 105 (K'ai-ming edition, p. 0237B) where bleeding is specifically to be prevented.

[128] Bridgeman, "Médecine," p. 49. *Shih-chi,* 105.0238B.

[129] *Su-wen,* 13.71-2.

In another treatise there is a specific question about the principles of the nine needles and although cosmological doctrines are cited, there is nothing on the system of openings.[130] In a treatise that discusses different treatments and the supposed origins of each, the use of stone needles is said to have come from the East for the treatment of skin ulcers while fine needles came from the South and are used to treat muscle and rheumatic illnesses.[131] There is evidence of the system of correspondences but no mention of the openings.

Hence although the system of openings is found in the *Plain Questions*, it is a late addition and does not become important in the development of the use of needles until after the technique was well established. The only sensitive points that are mentioned in early treatises, the *shu*, may have been incorporated into the later system but most of that system is derived from a school of cosmology. And even here, many treatises showing the influence of cosmological theory do not refer to the openings. The vessels, and not the openings, are the central feature in ancient acupuncture.

In conclusion, the development of a sequence in the use of needles from bloodletting to acupuncture rests on, one, the acceptance of a rough chronology of the treatises of the *Plain Questions*, two, the evidence that the vessels contain both blood and pneuma and are physical structures which include the superficial veins, three, the link between the vessels and the disease process, four, the siting of needling on the vessels and the instructions that blood is to flow, five, the absence of any use of needles to affect the pneuma in the texts from the Han tombs, and six, the lateness of the system of openings.[132] Each of these points has been examined and translations of passages given that suggest a transition from bloodletting as a foundation to acupuncture is feasible. Particularly important in the transition is the evidence of a solidly mechanistic approach to needling and the presence of an organic, not functional, substrate. The similarity in technique between affecting blood and affecting pneuma is also striking.

There were at least four aspects to the transformation of the use of needles. First there was probably some technical advance needed to provide the thin sharp needles that made it easier to avoid causing bleeding. Secondly, the flow of pneuma and its role in pathology, already postulated in Chinese physiological thought, had to overshadow the importance of blood that flowed along with it. Thirdly, and in part concurrent with the second, cosmological doctrines had to enter the medical picture to provide a theoretical framework that took the use of needles beyond a set of "clinically" derived practices. Fourthly, and most difficult to evaluate, there is the influence of empiricism.

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[130] *Su-wen*, 54.

[131] *Su-wen*, 12.70.

[132] Cf. Manfred Porkert who rejects historical analysis, wishing rather to assemble "a coherent and logical picture of the whole of Chinese medicine." *Theoretical Foundations*, p. 4. His interest is not in the history of Chinese medicine but is in modern "traditional" Chinese medicine. It is essential that such a distinction be clearly understood in any study of these topics.

It is sometimes suggested that acupuncture originated in pre-historical times from observations that accidental pricking by, say, thorns or stone chips, resulted in symptomatic relief from an ailment that happened to be afflicting the victim.[133] This is possible but it is not in accord with the evidence of the *Plain Questions,* does not explain why acupuncture is found only in China (such accidents could happen anywhere), and indeed is somewhat difficult to imagine. It is far more conceivable that the early use of needles on a magico-religious basis of removing a malevolent spirit that had caused an illness, as Saburo has said,[134] could have provided extensive opportunities for observing the effects of such a practice. From this extensive use it is possible that a body of data was built up which suggested that various effects could be obtained and that actual bleeding was not necessary. This empirical data could have led to modifications in the technique and perhaps in its theoretical background.

While it may have been one underlying impetus to change, the role of empiricism is as difficult to assess in Chinese medicine as it is in the history of Western medicine. The continued use of needles does not in itself prove the technique was effective. Bleeding was used in the West for centuries in cases where it could not have done any good or even may have been positively harmful. By the same token however, and equally important, the lack of a physiological explanation or the existence of an obviously erroneous or scientifically unacceptable one, does not mean that the technique could not have been an effective and valid treatment whose mode of functioning is not yet understood.

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[133] See for instance Han Agern, "Empiricism and speculation in traditional East Asian medicine," *Nihon Ishigaku Zasshi,* 1970, *23.2.* 307. Joseph Needham suggests the whole system may have arisen from observation of referred pain. "Medicine and Chinese Culture," in *Clerks and Craftsmen in China and the West* (Cambridge: Cambridge University Press, 1970), p. 291. Also see Porkert, *Theoretical Foundations,* p. 198; Jung Chi-chih, *Chen-chiu fa-chan shih-hua* (Hong Kong, 1974), pp. 4-9; and *Chen-chiu shih-hua, passim.*

[134] "Chūgoku kodai no shippei kan to ryōhō," p. 235.

GERHARD'S DISTINCTION BETWEEN TYPHOID AND TYPHUS AND ITS RECEPTION IN AMERICA, 1833-1860*

DALE C. SMITH

The concept of fever, as a disease, played an important role in the medical theories of the early modern period and was often the foundation of medical systems in the eighteenth and early nineteenth centuries. Fever was so important, so prevalent, and so ambiguous that it attracted the attention of almost every major writer on pathology and medicine. There was a fundamental unity to the concept of fever which was as old as rational medicine—almost all the sick suffered from symptoms of flushed skin, quickened pulse, and a sense of cold and hot periods. Yet there were considerable differences as well. Sometimes the fever was only secondary to trauma or illness localized in some body part; sometimes, as in smallpox, the fever was an essential part of the disease but not the dominant characteristic. Sometimes fever waxed and waned or disappeared altogether for a time only to return at regular intervals; at other times the fever seemed to persist until a crisis after which convalescence obviously began. Symptomatic fevers, while no doubt important, were not as interesting to the physician because he assumed that he could attribute them to a definite precondition. The idiopathic or essential fevers attracted greater medical attention. Essential fevers seemed to divide easily into two broad groups—the periodic and continued fevers—but the fundamental unity was reinforced by those fevers, called remittent, which seemed to bridge the most periodic intermittent fever and the common continued fever. Within the broad groups fevers were often subdivided by symptomatic differences and in an almost cyclical way each generation stressed either the unity of fevers or their differences. Sydenham's symptomatic differences were rationalized by Boerhaave who utilized seventeenth-century physiological discoveries to explain the fundamental unity of fevers. Boerhaave's students, such as John Huxham and Sir John Pringle, used their master's system as a foundation on which to build clinical pictures which stressed differences within the general unity of fevers. William Cullen, utilizing new knowledge of nervous system physiology, stressed once again the underlying pathological unity of fevers. In early nineteenth-century France, Philippe Pinel and August Chomel stressed the variety of observable symptomatic and post-mortem fever complexes while F. J. V. Broussais looked for a pathological unity of fevers.

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Fever was naturally one of the conditions which influenced Pierre Louis during his six-year research period at La Charité Hospital. The result of that careful attention was the publication of Louis' famous *Recherches anatomiques, pathologiques et thérapeutiques sur la maladie connue sous les noms de gastroentérite, fièvre putride, adynamique, ataxique, typhoide, etc., . . .* in 1829. Using his "numerical method" Louis established that the continued fever seen in Paris and known under a wide variety of names, and by extension, perhaps, all the important continued fever of other locations as well, was one disease characterized in life by rose-colored lenticular spots and diarrhea, and in death by pathological changes in the Peyer's patches of the small intestine.[1]

The work of Louis was part of the international effort to gain a better understanding of fever in the early nineteenth century and studies were undertaken in almost every Western country to confirm the observations of the French pathologist.[2] The initial response to Louis' generalization was quite varied but generally physicians outside France found exceptions. In the British Isles the lesion of the Peyer's patches seemed to be the exception rather than the rule and in retrospect Louis appears to have been seeing mainly one disease, typhoid fever, while other observers were seeing typhoid, typhus, and probably several other febrile diseases as well. In British cities where in the 1830s typhus was probably more common than typhoid, Louis' work was considered particularly deficient. The response in the United States, where typhus was rather rare, was considerably different.

In the United States the problem of understanding fevers was compounded by the problems associated with settling a new land. The medical authorities used by American physicians were primarily British authors who wrote from a standpoint of medical practice in cities while the

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[1] Pierre Louis, *Recherches anatomiques, pathologiques et thérapeutiques sur la maladie connue sous les noms de gastro-entérite, fièvre putride, adynamique, ataxique, typhoide, etc., etc., comparée avec les maladies aigues les plus ordinaires*, 2 vols. (Paris: J. B. Baillière, 1829)

[2] Leonard G. Wilson, "Fevers and science in early nineteenth-century medicine," *J. Hist Med.*, 1978, *33:* 386-407.

American physician was usually a rural or small town practitioner. In most sections of the United States in 1830 periodic fevers were much more important than were the continued fevers of interest to European practitioners. Only in New England had the role of malarial fevers begun to decline by 1830 and even there they remained part of country practice.[3] The common continued fever of New England, often called typhous or typhus, but also known as autumnal fever or just as continued fever, was recognized as being different from the true typhus described by British authorities. Some American physicians naturally attempted to place American experience within British theoretical systems. One of the most extensive of such attempts was that by Francis Boott in his 1833 *Memoir* of John Armstrong, to explain "that intermittents, common remittents, yellow fever, and typhus, are indisputably modifications of the same disease, arising from malaria."[4] Less dogmatic physicians called attention to the differences and began to search for explanations. The chief source of such explanations was in the new science of pathological anatomy.

In the early 1830s the work of French pathologists, in particular F. J. V. Broussais, began to exercise greater influence in the United States.[5] In 1829 William E. Horner of Philadelphia published the first American textbook of pathology,[6] in which he revealed the profound impression made upon his ideas by the work of Xavier Bichat and François Broussais. The book is primarily a discussion of inflammation in various tissues and 90% of all disease is associated with such inflammation. Horner generally approved of Broussais' emphasis on the importance of gastrointestinal inflammation and was probably influenced by what Esmond Long has described as Horner's "largely erroneous" view of inflammation in the stomach and intestines. He seems to have confused "post-mortem settlings of blood in the wall of the bowel," and "the necessary anatomic results of the vastly over energetic purgings and bleedings and starvings of the current medical practice" with "manifestations of primary disease."[7] Fever, for Horner, was the product of inflammation, produced by irritation of some tissue; the differences among diseases described as fever were therefore due to the differences among the tissues inflamed in different cases. In 1832 another Philadelphian, Samuel Jackson, stressed the importance of gastroenteritis or inflammation of the tissues of the stomach and intestines in understanding fever. Jackson also acknowledged his indebtedness to the French pathologists, in particular to Broussais.[8]

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[3] Oliver Wendell Holmes, "Dissertation on intermittent fever in New England," in his *Boylston Prize Dissertations for the Years 1836 and 1837* (Boston: Little, 1838), pp. 1-134.

[4] Francis Boott, *Memoir of the Life and Medical Opinions of John Armstrong, M.D.*, 2 vols (London: Baldwin and Cradock, 1833), 1: 611-12. The term *malaria*, as a name for a chemical poison causing disease, was introduced into the literature of the English speaking medical profession by John Macculloch in his treatise *Malaria: An Essay on the Production and Propagation of this Poison and on the Nature and Localities of the Places by which it is Produced* (London: Longman, Rees, Orme, Brown, and Green, 1828)

[5] Richard H. Shryock, "The advent of modern medicine in Philadelphia, 1800-1850," *Yale J. Biol. Med*, 1941, *13*: 715-38; Esmond R. Long, *A History of American Pathology* (Springfield, Ill.: Charles Thomas, 1962).

[6] W. E. Horner, *A Treatise on Pathological Anatomy* (Philadelphia: Carey, 1829).

By 1833 Americans were becoming quite familiar with the ideas of Broussais and other French pathologists and were beginning to appreciate that pathological anatomy might help to explain the phenomena of fever. They were, however, divided over the conclusions to be drawn from the pathology and even about the way in which pathological evidence should be used. In the first issue of the short-lived *Baltimore Medical and Surgical Journal and Review,* Dr. Eli Geddings, the Paris-trained editor, advocated the important role played by gastroenteritis in many acute diseases; including "fever, diarrhoea, dysentery, cholera, and cholera infantum." Inflammation of the stomach and intestines was described as the primary seat of the essential or idiopathic fevers; the fever symptoms were described as "mere shadow or reflected image." Geddings drew examples from the work of Andral, Broussais, Cruveilhier, Louis, Petit and Serres, and Trousseau; all of which indicated the universal presence of pathological changes in some portion of the gastrointestinal tract. Geddings also cited his own experience:

> We have repeatedly met with it [gastroenteritis] in those who had died at an early period of bilious remittent, yellow, and typhoid fevers; . . . we do not remember to have seen a case in which some evidence of follicular gastro-enteritis . . . did not exist.[9]

The evidence was not always the same; it took the "form of enlargement of the follicles, punctuated redness, extravasation, &c." and it was "obscure, in some cases." Yet "when the intestine was fairly laid open, carefully cleansed, and held between the eye and a strong light, or examined with a magnifying glass," the evidence was "always sufficiently apparent."[10]

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[7] Esmond R. Long, "The first text of pathology published in America," *Arch. Path.*, 1930, *9:* 898-909.

[8] Samuel Jackson, *The Principles of Medicine, Founded on the Structure and Functions of the Animal Organism* (Philadelphia· Carey & Lea, 1832).

[9] Eli Geddings, "Physiologico-pathological observations on follicular gastro-enteritis," *Baltimore Med Surg. J. Rev.*, 1833, *1*· 50-104, esp. pp. 76-77.

Geddings noted that symptom complexes might differ and acknowledged that such differences were probably significant, at least as therapeutic guides; but he was much more concerned with the unitary character of fever as a response to inflammation. Differences among observed fevers were perhaps due to different seats of inflammation within the gastrointestinal tract; but he noted also the close interconnection of the various tissues and suggested "that it will be almost impossible for one portion to be implicated without the other, and even if that were to be the case, the difference of effect could not be so great as to give rise to such a diversity in the general phenomena of the disease."[11] He did acknowledge that since the glands of Peyer and Brunner might have significant offices to perform in the animal economy their inflammation might produce more serious disease than simple inflammation of the gastrointestinal mucosa.

In the second number of the *Baltimore Medical and Surgical Journal and Review* Dr. John P. Harrison of Louisville, Kentucky, argued against the purely inflammatory nature of fever and urged the more traditional opinion that fever was a constitutional disease. Harrison had studied under Nathaniel Chapman at the University of Pennsylvania, was a physician to the new Louisville Hospital, and tried to keep abreast of medical progress. He read the French medical literature, did post-mortem examinations, and even tried to teach himself to use the stethoscope. He probably saw less continued fever than Geddings, but fevers were a large part of his experience. Harrison realized that fever was an ambiguous concept. He pointed to the absence of a pathognomonic symptom and to the great variability of the symptom complex associated with fever; but fever possessed "a unity, or individuality of existence" that gave it reality. It affected the whole body and no effort to explain fever as the result of inflammation was satisfactory. Harrison pointed out that some authorities had described fever as resulting from inflammation of the brain and central nervous system while others, more recently, had favored the gastrointestinal tract. Because of the unity of fever the two claims refuted one another. Furthermore, there were numerous examples in the literature, the most recent being Alexander Tweedie's *Clinical Illustrations of Fever,* of cases of obvious fever in which no post-mortem lesions could be identified. Harrison supported such reports with examples of his own from Louisville.[12]

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[10] *Ibid.*

[11] *Ibid.*, p. 81

Neither Geddings's eclectic observations to prove a theory nor Harrison's use of isolated post-mortem examples to disprove opposing opinions were the most effective way to utilize the data of pathological anatomy. In December 1833 Enoch Hale of Boston published a short paper establishing a much more limited goal. Dr. Hale called attention to the difference between the typhus fever of the British authorities and the common continued fever, often called typhus or typhous fever, in New England. He acknowledged that it would be very difficult to prepare a written description of the domestic typhus on which all practitioners would agree but felt that it was one disease which any physician recognized "as distinctly as he recognises an apple by its appropriate designation." He urged careful investigation by a variety of practitioners, that all take care to work "with a temperate abstinence from theoretical speculation and premature deductions," in the manner of the most careful European pathologists, particularly Louis. He urged an "account of the observations of Louis on this subject and their results," and hoped that someone could report "how similar phenomena have been observed in our own fevers."[13]

The appearance of Enoch Hale's paper in December 1833 was not accidental. Hale was the close friend of James Jackson; they worked together on the staff of the Massachusetts General Hospital and were both actively interested in medical developments in Paris. In August 1833 James Jackson, Jr., had returned from Paris after working for two years with Pierre Louis. Young Jackson was observing fever cases in the wards of the Massachusetts General Hospital and was urging the need for American translations of Louis' works. He discussed the methods of Louis with his fellow Bostonians and encouraged them to make careful and complete observations. Enoch Hale knew of young Jackson's interest and work. He was no doubt impressed by the precision of Louis' methods, and was probably anticipating Jackson's report on the typhoid fever of New England. James Jackson, Jr. died suddenly in 1834 with his work unfinished.

Following his son's death James Jackson, Sr. received a letter of condolence from his son's friend, and fellow Louis pupil, William Wood

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[12] John P. Harrison, "Observations on the pathology of fever," *Baltimore Med Surg. J. Rev.*, 1833, *1*. 276-95.

[13] Enoch Hale, "Remarks on the typhus fever in this climate," *Med. Mag* , 1833, *2*. 301-17.

Gerhard. Gerhard urged Jackson to publish his son's observations and cases, and in 1835 Jackson did so as part of the famous *Memoir* of his son. In an editorial note Jackson wrote of the typhus of New England in the fall of 1833, that in every case "the phenomena accorded with the descriptions given us by M. Louis."[14]

In 1835 Gerhard also published his own observations based on experience at the Pennsylvania Hospital in Philadelphia. Opportunities for medical research were very limited in nineteenth-century America but the few urban hospitals employed, usually at nominal salaries, a few young physicians to supervise medical care when the senior physicians were not in attendance. These young men gained valuable experience and contacts which aided them in the development of their practices. At some hospitals they were able, if they wished, to perform post-mortem examinations and collect clinical observations. On his return from Paris in the fall of 1833 William Wood Gerhard was appointed resident physician of the Pennsylvania Hospital where he was able to continue the studies he had begun with Louis in Paris.[15] Gerhard was able to identify the common continued fever of Philadelphia with the typhoid of Louis and to establish that there were both symptomatic and pathological differences between Louis's typhoid fever and the periodic fevers of the United States.[16] Perhaps for the first time in America the limited but precise nature of the numerical method was illustrated. Neither Louis nor Gerhard had made the fever of typhoid fever dependent on the inflammation of the small bowel; the post-mortem changes observed in the Peyer's patches were simply a universal occurrence in typhoid fever. Gerhard, under the tutelage of Louis, had seen sufficient evidence of the correlation and was willing to believe that typhoid fever was a specific disease characterized by a particular lesion; if a case of fever did not have the lesion it was not typhoid fever. Unlike Eli Geddings, Gerhard did not need to find evidence of post-mortem change in the intestines of all fever cases; he was committed not to a theory but to the collection of data.

This transformed attitude was made very clear in June 1835 by Elisha Bartlett of Lowell, Massachusetts. Bartlett reported several cases of "typhus" fever in Lowell, all of which were identical with the typhoid fever of Louis. He urged continued observations and careful post-mortem examinations and then appended a comment on a pamphlet on typhus fever which he had encountered. This work prepared in 1818 by Dr. W. Gamage had reported three post-mortems. Based on this new understanding of the role of pathology Bartlett wrote, "In one of them no mention is made of the abdominal organs, and in the other two, they are stated to have been free from disease. Whatever else the disease described by Dr. Gamage may have been, it is abundantly evident that it was not the true typhus of modern authors."[17]

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[14] James Jackson, *A Memoir of James Jackson, Jr., M.D.* (Boston: I. R. Butts, 1835), p 274. The Gerhard letter is in the Jackson Papers, Countway Library, Boston, Massachusetts.

[15] Thomas Stewardson, "Biographical memoir of W W. Gerhard," *Trans. Coll Physic. Phila.*, 1874, *4:* 473-81.

[16] W. W. Gerhard, "Report of cases treated in the medical wards of the Pennsylvania Hospital," *Amer. J. Med Sci*, 1835, *15*· 321-41; *16:* 35-57.

The work of Gerhard, Bartlett, and a growing number of Boston practitioners[18] helped establish that the common continued fever of the eastern United States, often called typhus by American practitioners, was the same disease as the typhoid of Louis. The problem remained that there was a disease described as typhus by the British authors which had been recognized by careful observers in certain American epidemics; sometimes it was called spotted or congestive fever, but it was usually described as typhus or epidemic typhus.

In the winter of 1836 a variety of fever which was certainly not typhoid began to appear in Philadelphia; by March it had reached epidemic proportions. The new disease was commonly misdiagnosed at first, sometimes being described as a pulmonary affection, sometimes as a particularly severe remittent fever, but Gerhard quickly began to suspect that it was the typhus of British authors. He, with the assistance of his colleague and fellow Louis pupil, Caspar Pennock, began to collect data "to ascertain if there was a real fundamental difference between the form of disease" seen in the epidemic and the typhoid fever they knew so well. During the epidemic there were over 2000 cases. Gerhard and Pennock conducted about fifty post-mortems, and established the non-identity of the epidemic typhus with the typhoid fever commonly seen in America.[19] It remained questionable whether the Philadelphia typhus of 1836 was the same disease which was common in Great Britain, but the suggestion of Dr. H. C. Lombard of Geneva in the summer of 1836 offered some confirmation. In 1838 Dr. Alfred Stillé reported his observations of typhus at

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[17] Elisha Bartlett, "Contributions to pathological anatomy: typhus fever," *Med. Mag* , 1835, *3:* 663-77.

[18] In addition to Enoch Hale and James Jackson, Sr., J. B. S. Jackson, pathologist of the Massachusetts General Hospital and Henry I. Bowditch, recently returned from Paris studies with Louis, were continuing to collect data confirming the identity of domestic typhus and the typhoid of Louis. Dr. Bowditch was also translating Louis' *Recherches;* his translation appeared in 1836.

[19] W. W. Gerhard, "On the typhus fever which occurred at Philadelphia in the spring and summer of 1836," *Amer. J. Med. Sci.*, 1836, *19:* 289-322; 1837, *20:* 289-322.

Dublin, Edinburgh, and London, and described that disease as identical to the typhus which he had observed in 1836 as Gerhard's resident in Philadelphia. Early in 1839 George Cheyne Shattuck observed and distinguished both diseases while working at the London Fever Hospital under Alexander Tweedie.[20]

Since the essays of Sir William Osler at the end of the nineteenth century, Gerhard's distinction of typhus from typhoid fever has commonly been recognized as a milestone in American pathology. The failure of British physicians, for a variety of reasons, to acknowledge Gerhard's achievement was known to Osler and has excited comment repeatedly in the last one hundred years. The response of Gerhard's American contemporaries, on the other hand, has received little attention beyond Osler's statement that "the differentiation of the two diseases was here [i.e. in America] quickly recognized, since, . . . Bartlett in 1842 considered them apart."[21]

Elisha Bartlett's 1842 monograph, *The History, Diagnosis, and Treatment of Typhoid and of Typhus Fevers,* was an outgrowth of the American studies of the 1830s. After the publication of Gerhard's work in 1837, both James Jackson[22] and Enoch Hale[23] presented reports of their own observations to the Massachusetts Medical Society. Their reports were influential in Boston and became known throughout New England where they helped to establish the distinct character of the two kinds of fever and encouraged an appreciation of the new methods of clinical-pathological research. Yet, as Bartlett pointed out in his book, there was a need to present the new ideas to a wider audience of American physicians.[24]

Bartlett was particularly well suited to the task because he had been part of the effort to establish the identity of the typhoid fever of Paris with that of America. In 1826-27 Bartlett had himself studied in Paris and was fully aware of the methods and goals of the new research school.[25]

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[20] Wilson, "Fevers and science."

[21] William Osler, "The influence of Louis in American medicine" in his *An Alabama Student and Other Essays* (London: Oxford, 1908), p. 208.

[22] James Jackson, *Report Founded on the Cases of Typhoid Fever or the Common Continued Fever of New England, which occurred in the Massachusetts General Hospital,* . (Boston: Whipple & Damrell, 1838).

[23] Enoch Hale, "Remarks on the pathology of the typhoid fever of New England," *Med. Comm. Mass. Med. Soc.,* 1837-41, *6.* 183-257.

[24] Elisha Bartlett, *The History, Diagnosis and Treatment of Typhoid and of Typhus Fevers* (Philadelphia: Lea & Blanchard, 1842), pp. v-ix.

[25] Erwin Ackerknecht, "Elisha Bartlett and the philosophy of the Paris clinical school," *Bull. Hist. Med.,* 1950, *24:* 43-60.

Bartlett realized that medical understanding of fever was in transition to a new era and he hoped to provide "practical men" with "means of diagnosis between the different species or forms of fever. . . ." He recognized that his own knowledge of typhoid fever was much better than his understanding of typhus, and that typhoid was the continued fever most commonly observed in the United States. While he believed it was essentially different from typhus he acknowledged that the question was not settled and that most British authors, "who enjoyed the most extensive opportunities for studying and comparing the two diseases," considered the diseases identical.[26]

Bartlett's book sold well, particularly in the South and West where physicians tended to feel isolated, and its popularity would gradually have an effect, but the response to the idea of the distinct character of typhus and typhoid fevers was hardly wholesale acceptance. Many factors contributed to the slowness of the spread of the idea; there were problems of inertia as well as questions about the reliability of the data. Most significant was the failure to understand the new research methods and Bartlett's prefatory claim that "It cannot be necessary to go into any formal vindication of the importance of this diagnosis,"[27] appears naive or perhaps was wishful thinking.

In 1846 Theodore Sill, addressing the annual meeting of the Connecticut Medical Society on the subject of typhus fever, claimed never to have conducted a post-mortem examination and even went so far as to say, "I am fully of the opinion that it was correctly taught by my respected instructor, Dr. Ives, that 'morbid anatomy gives very little light upon the pathology of the disease.' " Not surprisingly Sill considered the typhoid and typhus of Bartlett "as one and the same disease, differing only according to accidental circumstances, ..."[28]

Even American practitioners who had opportunities to perform postmortems, and who appreciated the value of the science of pathology, had grave doubts about the reliability of the distinction in the face of the great mass of British pathological studies favoring the unity of continued fever. In 1846 Charles Lee, professor of pathology at Geneva Medical College, cited the work of Gerhard and Bartlett but concluded,

> In the present stage of our knowledge, . . . it is impossible, perhaps, to determine whether the disease, [typhoid fever] of which we have given an account be a specific one, or whether it be but a variety of our continued fever. . . We are

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[26] Bartlett, *Fevers*.

[27] *Ibid.*, p. viii.

[28] Theodore Sill, "Observations on typhous fever," *Proc. Conn. Med Soc.*, 1846, 19-36.

inclined to take the latter view and think it desirable, . . ., to designate the phenomena. . . abdominal typhus.[29]

Such doubts were intensified by serious questions concerning the value of the "numerical method." The work of Pierre Louis was often misunderstood in the United States. In 1840 Martyn Paine, a professor and founder of New York University Medical School, issued a severe attack on Louis and the numerical method as part of his *Medical and Physiological Commentaries*. Paine was very conscious of criticism of the medical profession and thought that users of the numerical method unfairly disregarded the work of previous authors. He urged greater attention to the symptoms of the living patient and a judicious appreciation of the opinion of all writers. Paine believed that the members of the anatomical school of Louis were interested exclusively in post-mortem appearances, without proper attention to clinical signs and symptoms. According to Paine, Louis has surprised "the world with a variety of new hypotheses and principles founded on the typhoid affection. It appears to have been a primary object to cover this disease with mysteries." The mystery which Paine read into Louis's work, probably accurately, was that Louis expected the Paris experience with intestinal lesions to be confirmed universally. Perhaps less accurately, Paine inferred that Louis thought that the fever was the result of the intestinal lesion. Paine seemed unable to distinguish the precise analysis of a numerical record from reflective reasoning on accumulated experience, except to feel that the latter was probably a more extensive view of nature and so truer.[30]

Professor Paine's *Commentaries* drew sharp reactions from Pierre Louis' American students[31] but it also elicited a more judicious appraisal of the "numerical method" by Austin Flint of Buffalo, New York. Flint recognized the method as quantification which had revolutionized other sciences and asked three questions about it: was it applicable to medical subjects? would the results be practical? and how much influence might it realistically be expected to have? Flint concluded that, based on the works of Louis and his followers, the numerical method was applicable within limits, but would always be only a part of medical inquiry. The method could not reduce medicine to an exact science because it could not take individual variations into account. Within limits the numerical system could offer results of practical value if enough physicians would devote the time and energy to pursuit of the method in research.[32]

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[29] Charles A. Lee, "Notes on typhoid and typhus fevers," *N. York J. Med.*, 1846, *6*. 42-53, 353-62.

[30] Martyn Paine, "Essay on the writings of M. Louis," in *Medical and Physiological Commentaries*, 3 vols. (New York: Collins, Keese, 1840-44), 2: 686-814.

[31] H. I. B.[owditch], "Medical and physiological commentaries," *Boston Med. Surg. J.*, 1840, *23*. 73-84, 89-98, 107-110. J. A. S [wett], "Medical and physiological commentaries by Martyn Paine," *N. York J. Med. Surg.*, 1840, *3:* 403-32.

Much of the confusion which surrounded the distinction of typhus from typhoid fever in the 1840s was the result of a lack of opportunity for American practitioners to observe the diseases. According to notes of his lectures, Dr. John Ware, professor of theory and practice at the Harvard Medical School, saw no virtue in Gerhard's distinction. In 1838-39 Ware lectured extensively on the "Common Continued or Typhus Fever" which was the typhoid fever of Louis. He described its course and pathology in detail illustrating a full appreciation and awareness of the works of Jackson, Hale, Bartlett, and the early work of Gerhard. But the only distinction that Ware found important in the study of continued fevers was between the common continued fever and "that contagious, epidemical, called flu, yellow, strangers, camp F." This second form was "Rare among us" and had appeared only "4 times in 20 years."[33]

The rarity of typhus fever, and consequent lack of concern on the part of American physicians persisted into the 1840s. In 1847, with more honesty than most authors on the subject, Dr. C. L. Lamb of Tennessee wrote "that there are many who believe typhus and typhoid fevers to be distinct diseases, no one will doubt, but as I have but *rarely, if ever,* seen the contagious form of typhus, as described by authors, I will content myself by believing, that if they are not 'one and the same individual, they are at least pathological twin brothers.' "[34]

The late 1840s saw the beginnings of more common acceptance of the distinction between the two fevers. In 1847 Bartlett's monograph appeared in an expanded second edition and the influx of destitute immigrants, particularly from Ireland as a result of the potato famine, brought epidemic typhus to America with much greater frequency. As large numbers of Irish immigrants began to arrive the wards of public hospitals in east coast cities provided rich opportunities to study the two diseases. At Philadelphia the epidemic typhus was recognized and accepted as distinct from the usual sporadic cases of typhoid. Most discussions of typhus fever dealt with methods of prevention rather than questions of pathology.[35]

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[32] Austin Flint, "Remarks on the numerical system of Louis," *N. York J. Med. Surg.*, 1841, *4:* 283-303.

[33] William Thornton Parker, "Notes from medical lectures at Harvard University AD 1838-9-40," Countway Library, Boston, Massachusetts, quotations from p. 54 of 178 pp. on Dr. Ware's course.

[34] C. L. Lamb, "Remarks on typhoid fever," *Mo. Med. Surg. J.*, 1847, *3* 271-77.

[35] "Discussion on typhus fever," *Trans Coll. Physic. Phila.*, 1849, *2:* 132-42.

Similarly at Boston the ship fever, as typhus was usually called there, was recognized as distinct from the domestic typhus or typhoid fever of Louis. At the Deer Island Hospital Dr. Charles Stedman and his student aides saw a great deal of typhus, but little or no typhoid fever. They knew typhoid well from continued study of it at the Massachusetts General Hospital and the different symptom complex associated with ship fever accompanied by careful post-mortem examinations made the distinct character of the latter very clear.[36]

At New York City the epidemic fever was initially thought to be typhoid, but the error was rapidly corrected in the minds of more careful observers. David M. Reese, resident physician at Bellevue Hospital, wrote "The absence of the intestinal ulcerations, which characterizes the Dothinenteritis of the French writers, proved that our epidemic at least has been called typhoid fever by a misnomer." To Reese the fever seemed to resemble much more closely the petechial typhus of British experience.[37] As the epidemic progressed during the summer of 1847, doubts and confusion increased. Lyman Stone, who served as an assistant physician at Bellevue during the fever epidemic, came to believe there were no essential differences between typhoid and typhus. When, in 1848, he studied his notes he found fifty-eight of sixty-six patients had what he could describe as lenticular spots, fifty-one of sixty-four had diarrhea. Out of twenty-four patients to be autopsied six had ulcerated Peyer's patches.[38] Similar problems beset John Griscom, visiting physician at the New York Hospital. During his term of service in the summer of 1847 he autopsied ten patients he believed to have epidemic ship fever or true British typhus. Of these ten, six had altered Peyer's patches although only two were described as truly ulcerated.[39]

The conditions under which the New York physicians worked contributed to their difficulties. The illness of the patients was often well advanced before they were brought into hospitals and clinical records were poorly kept. The living conditions in which the poor of New York lived also contributed to the confusion; the usual endemic typhoid and dysentery no doubt continued to occur during the ship fever epidemic. Finally there was no longstanding tradition of the study of fever or even of the systematic study of disease in the hospitals at New York and the understanding of the techniques of clinico-pathological analysis was, compared to Boston or Philadelphia, only poorly developed.

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[36] Henry Graffon Clark, *Ship Fever, so called, Its History, Nature and Best Treatment. The Fiske Fund Prize Dissertation for 1849.* (Boston. Ticknor, Reed & Fields, 1850). Jabez Baxter Upham, "Clinical notes and post mortem illustrations of typhus or ship fever, as it occurred at House of Industry and Deer Island Hospital in 1847," *Boston Med. Surg. J.*, 1847, *37:* 489-97; 1848, *38:* 12-18, 34-40.

[37] David M. Reese, "Ship fever at Bellevue Hospital," *N. York J. Med.*, 1847, *9:* 266-270, p. 270.

[38] Lyman Stone, "Remarks on typhus or ship fever," *N. York J. Med.*, 1848, *10.* 168-77.

[39] John Griscom, "Typhus or ship fever," *N. York J. Med.*, 1847, *9:* 347-54.

In New York the confusion of the fevers was so great that by 1850 Alonzo Clark, a Paris-trained pathologist and close friend of Elisha Bartlett, was convinced of the identity of typhoid and typhus fevers. On 7 February 1850 Clark presented his report and conclusions on the identity of the fevers to the annual meeting of the Medical Society of the State of New York. An interesting discussion following, during which several members seconded Clark's position. If any member supported the idea that the two diseases were distinct, the support was not recorded in the records of the society. Following the discussion the society appointed a special committee to "collect information respecting fever." Dr. Austin Flint of Buffalo was named chairman.[40]

In the discussion at the state medical society meeting of February 1850 and in published statements, Flint had maintained that typhoid and typhus were essentially alike. He acknowledged only one disease of which there were accidental varieties which might, if one wished, be named the typhoid (or enteric) and typhus forms of continued fever. However, Austin Flint had never really studied the question and was relying on experience and authority. In his 1841 paper on the numerical method he had stressed that Louis' claim that the difference between the numerical method and experience was "the difference of truth and error; of a thing clear and truly scientific on one hand, and of something vague and almost worthless on the other."[41] Flint had also been carefully collecting clinical observations, a task which he had commended to the profession in 1841. (When he died in 1886 Austin Flint had collected 16,922 folio pages of such observations).[42] During the summer of 1850 Flint began to review by crude numerical analyses fifty-two cases of continued fever for which he had records. On thirty-eight of the cases which were from his wards in the Hospital of the Sisters of Charity at Buffalo, New York, he had very complete daily case reports. Of these cases using the diagnostic criteria of Elisha Bartlett, eighteen were typhoid, twelve were typhus, and eight were in doubt.[43]

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[40] P. van Buren, "Abstract of the proceedings of the medical society at its annual session in February, 1850," *Med. Soc. St. N. York, Trans.*, 1846-50, *7*· 241-60.

[41] Flint, "Numerical system," p. 291.

[42] *Dictionary of American Medical Biography*, s.v. "Flint, Austin."

[43] Austin Flint, "Report of clinical observation on continued (typhoid and typhus) fever based on an analysis of 52 cases," *Buffalo Med. J.*, 1850-51, *6*. 129-48, 193-214, 257-82, 321-46, 385-401, 449-67.

Austin Flint was not without experience in the study of fever and was a highly respected member of the New York State medical profession. Born in 1812 at Petersham, Massachusetts, he had graduated from the Harvard medical school in 1833 with a thesis entitled "Some Inquiries Relating to Spontaneous Disease."[44] In 1836 he moved to Buffalo where he developed an extensive medical practice. In 1842 he was appointed health officer for Buffalo and in that capacity in 1843 had the opportunity to investigate an outbreak of typhoid fever at North Boston in Erie County. His report of this epidemic was published in 1845 in the *American Journal of the Medical Sciences.*[45] Flint appreciated the limitations of medical practice in America's frontier towns and did his best to work for improvement. He helped found the *Buffalo Medical Journal,* (1845), a medical school (the Buffalo Medical College, 1847), and was an active researcher and hospital physician.[46]

Like many American practitioners, Flint had little opportunity to read foreign medical literature but he did carefully study the reviews and summaries which appeared in American periodicals. While collecting and reviewing his case notes on continued fever he encountered, in the *American Journal of the Medical Sciences,* reports of the work of William Jenner of London.[47]

Sir William Jenner (1815-1898) is remembered for his impressive confirmation of the work of Gerhard and the other early researchers who worked on the distinction between typhoid and typhus fevers. He was professor of pathology at University College, London, and in the 1840s was interested in the distinctions to be drawn among acute diseases. He was well aware of the researches on the clinico-pathological differences between typhoid and typhus fever, and in 1847 he obtained permission from Alexander Tweedie to study fever on the wards of the London Fever

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[44] Austin Flint, "Some inquiries relating to spontaneous diseases," a manuscript in the Archives T collection of the Countway Library, Boston, Massachusetts.

[45] Austin Flint, "Account of an epidemic fever which occurred at North Boston, Erie County, New York, during the months of October and November, 1843," *Amer. J. Med. Sci.*, 1845, *10*:21-35.

[46] *Dictionary of American Medical Biography,* s.v. "Flint, Austin."

[47] "On the identity or non-identity of typhoid fever, typhus fever, and relapsing fever. By W. Jenner, M.D., . . . (Proceedings of the Royal Medical and Chirurgical Society, Dec. 11th, 1849)," *Amer. J. Med. Sci.*, April 1850, *19*: 483-85; "On typhoid and typhus fevers. An attempt to determine the question of their identity or non-identity by an analysis. . By W Jenner, M D.," *Amer. J. Med. Sci.*, July 1850, *20*. 171-77. Flint acknowledged seeing the reports of Jenner's work in his first clinical report (n. 43) and in the preface of his collected clinical reports (Austin Flint, *Clinical Reports on Continued Fever*, . . . [Philadelphia: Lindsay and Blakiston, 1855], p. iv) He did not have an opportunity to see the originals of Jenner's papers until he visited New York City in 1852.

Hospital and to perform post-mortem examinations on those patients who died from continued fever. Jenner went beyond all the work which had been done because he realized that the basis of the opposition to the separation of various forms of fever lay in the etiological theories common in Great Britain. The multiplicity of supposed causal factors, both predisposing and exciting, the concept of the epidemic constitution, and the recognized importance of individual peculiarities and hygienic conditions, all combined to explain large variations in the form of continued fever so that typhoid was commonly regarded as the normal typhus, recognized by William Cullen, with a complication present in the gastrointestinal tract. After all, the symptoms of the two fevers were similar, both diseases were associated with rashes of some form, and the obvious diarrhea in the typhoid variety was readily explained by the intestinal complications of the basic disease. By careful correlation Jenner showed that the general symptoms of fever ran decidedly different courses in the fever with lesions of the Peyer's patches when compared to the fever without. In two years of study he claimed to have never confused the rash of typhus with the rose spots of typhoid. But most importantly he traced every case of fever back to its house of origin and established by rigorous comparison that cases of typhoid came from different households than cases of typhus.[48] At the same time all forms of continued fever were scattered throughout the city of London. Finally he found that an epidemic increase of one form of fever had no appreciable impact on the frequency of the other forms. The only possible conclusion according to Jenner, was that the diseases were different and that each had its own specific cause.[49]

Jenner's conclusions, available to Flint in brief but adequate summaries, may have shaped Flint's thinking, but in his report to the New York State Medical Society in 1851 Flint offered no opinions or conclusions on the question of distinction; he only presented his analysis of cases. During the winter of 1850-51 forty-eight more cases of continued fever occurred at the Buffalo Hospital and in the summer of 1851 Flint analysed these as a second clinical report.[50] After completing the analyses of 100 cases Flint changed his earlier opinion and in January 1852 he published a very influential paper in which he argued that typhoid and typhus fevers were distinct.[51]

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[48] In 1849 Dr. Jenner was also able to distinguish a third specific form of continued fever—relapsing fever—which he later showed to be clinically and pathologically distinct from typhoid and typhus His epidemiological studies considered the prevalence and location of all three varieties.

[49] William Jenner, *Lectures and Essays on Fevers and Diphtheria, 1849-1879* (New York: Macmillan, 1893).

[50] Austin Flint, "Second clinical report on continued fever based on an analysis of 48 cases," *Buffalo Med. J.*, 1851-52, *7:* 65-80, 172-83, 216-37, 280-98, 321-28, 393-411.

During 1852 Flint analyzed a third collection of clinical cases and read the original reports of William Jenner in which all Jenner's cases, tables, and examples were included. Flint also realized the importance of relapsing fever and was able to explain some of the doubtful cases among his early clinical reports on the basis of the third disease.[52] Flint also published a more complete post-mortem analysis of his cases in the light of Jenner's careful case reports.[53] Finally Flint reanalyzed his North Boston epidemic experience in terms of the new idea of specific cause, bound this essay with reprints of his work published since 1850, and issued it as a limited monograph late in 1852. It was reissued in 1855.[54]

In company with the careful studies of William Jenner and the earlier works supporting the distinction, Flint's confirmation seems to have had a settling influence on American opinion. A special committee of the A.M.A., investigating the question in 1853, cited Flint's studies as definitive.[55] During the late 1850s little confusion seems to have remained concerning the distinction between typhoid and typhus fevers. In 1857 Alonzo Clark edited a posthumous edition of Bartlett's monograph on fevers, praising both the work and the author in the highest terms.[56]

One key to an understanding of the efforts to differentiate between fevers appears to be an understanding of the importance of the distribution of disease. The small group of researchers who, in the 1830s, turned American attention to the clinico-pathological methods of Paris and the typhoid fever of Louis were able to do so because, like Louis, they were dealing primarily with one disease. Gerhard's distinction was largely fortuitous and remained unimportant to most Americans until they began to see typhus epidemics in the late 1840s. When epidemic typhus appeared in New York City the confusion which resulted was very similar to the British response to the initial efforts of Gerhard, Shattuck, and Stewart to differentiate the two diseases. In Britain as in New York City the two diseases occurred together and differential diagnosis became extremely difficult, particularly before a physician had been convinced of the reality of such distinctions. The significance of Jenner's careful analysis of causes and the realization that there were other diseases confusing the overall picture in urban centers was extremely important. Austin Flint's conversion, as a result of his careful analysis by the numerical method and the growing realization that the clinico-pathological studies of the Paris school were relevant to medical practice, also played an important role in America. So while Gerhard's work was a significant contribution to American pathology, it was not by itself sufficient. The acceptance of the distinction between typhus and typhoid fevers required, more than anything else, the re-education of American physicians—the transformation of the prevailing concept of disease and the creation of a new understanding of the nature of pathological evidence—a process which required a generation.

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[51] Austin Flint, "Symptoms distinctive of typhoid and typhus fever, . . ." *Buffalo Med. J.*, 1851-52, *7:* 449-75.

[52] Austin Flint, "Relapsing fever," *Buffalo Med. J.*, 1852-53, *8*· 149-58.

[53] Austin Flint, "Morbid appearance after death (exclusive of intestinal lesions) distinctive of the typhoid and typhus types of continued fever," *Buffalo Med. J.*, 1852-53, *8*· 145-48.

[54] Flint, *Clinical Reports*.

[55] Henry F. Campbell, "An inquiry into the nature of typhoidal fevers," *Trans. Amer. Med. Assoc.*, 1853, *6*. 422-76.

[56] Elisha Bartlett, *The History, Diagnosis and Treatment of the Fevers of the United States*, 4th ed., ed. and rev. by A. Clark (Philadelphia: Blanchard and Lea, 1856), pp. v-vi.

TO FIND A STAND: NEW ENGLAND PHYSICIANS ON THE WESTERN AND SOUTHERN FRONTIER, 1790-1840*

WILLIAM BARLOW AND DAVID O. POWELL

The number of physicians in the United States increased from less than 5,000 in 1790 to more than 40,000 in 1850. Moreover, the proportion of practitioners to the population grew significantly from one in 950 in 1790 to one in less than 600 in 1850. The result was an "unabsorbable surplus" of doctors in many parts of the country in the decade prior to the Civil War.[1]

In New England, however, an oversupply of medical practitioners existed at a much earlier date and continued throughout the nineteenth century. In Massachusetts, for example, there were only 522 residents for each physician as early as 1790. In Boston, the proportion was one physician to 479 residents in 1845.[2] Although reliable statistics are not available, the abundance of doctors must have been common throughout the region as increasing numbers of New Englanders opted for medical careers. From 1790 to 1840, professional ranks mushroomed. In addition to the 3,500 graduates of the area's medical schools, a possibly larger group of new recruits either attended medical lectures without obtaining degrees, trained exclusively under preceptors, or received their education outside the region. The impact of this growing supply of physicians upon the medical profession has largely been ignored.[3]

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* Revised version of a paper presented at the 50th annual meeting of the American Association for the History of Medicine, Madison, Wisconsin, May 13, 1977.

[1] James H. Cassedy, "Why Self-Help? Americans Alone with Their Diseases, 1800-1850," in *Medicine Without Doctors Home Health Care in American History*, ed. Guenter B. Risse, Ronald L. Numbers, and Judith Walzer Leavitt (New York: Science History Publications, 1977), pp. 35-36.

[2] Eric H. Christianson, "The emergence of medical communities in Massachusetts, 1700-1792 the demographic factors," *Bull Hist. Med*, 1980, *54:* 65; Cassedy, "Why Self-Help," p 48.

[3] It is impossible to determine how many physicians were trained and how many practiced in New England during the period. Only the number of medical graduates can be reported with accuracy. Statistics concerning those attending lectures without receiving the doctorate are incomplete, and, therefore, totals cannot be given. Where such records exist, they indicate that the nongraduates outnumbered the graduates, sixty-four percent at Dartmouth and sixty-three at Woodstock, for instance. Some nongraduates, however, did not enter the profession While significant proportions of both groups practiced outside the region, Waite's estimate that a majority of the students at Castleton and Woodstock did locate in the area undoubtedly holds true for those who attended other New England colleges. As for those educated solely by preceptors, no statistics of any kind are available. Frederick C. Waite, *The First*

Manuscript sources reveal that the surplus of practitioners in New England made it difficult for the young and inexperienced to begin practice. As early as 1789, a Rhode Islander, locating in Bennington, Vermont, faced stiff opposition from "four Gents of the faculty." His only hope of remaining was that the first was "drunk by eleven o'clock," the second "a hackney midwife," the third retiring, and the last, under his care, "on the verge of mortality."[4] By the opening of the new century, rivalry among doctors was intense. A Middletown, Connecticut, physician lamented that he was "surrounded by physicians on all sides and at no great distance."[5] Laban Ladd set his sights on Pomfret, Vermont, where the local practitioner had lost the confidence of the people by intemperance but had to settle for New Durham, New Hampshire, where there were few inhabitants and little sickness. Outmaneuvered for a position at Cornith, Vermont, Bradley Noyes hurried to Deerfield, Massachusetts, when informed that the doctor there was away attending Berkshire Medical College. "All the business," he gloated, "has fallen into my hands."[6] Ezra B. Gale cornered a considerable share of practice in Brentwood, New Hampshire, only because his competitor was an alleged grave robber. To ward off contenders for the position while he was absent at medical school, Gale persuaded his brother to take his place until he returned. In failing health, Ezra Bartlett invited his son to return to Haverhill, New Hampshire, to deter other practitioners from coming. Arrival of the seventh doctor in Leominster, Massachusetts, prompted a barkeeper to comment that "we have not yet so many that we begin to feed the hogs with them, but I don't know how soon we may have."[7] By 1832, an unexpected death could cause a stampede. When a steamboat exploded on the Connecticut River, Dr. Joseph Dean of Bath, New Hampshire,

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Medical College in Vermont. Castleton, 1818-1862 (Montpelier: Vermont Historical Society, 1949), pp. 107-109, 114-115, 194 and *The Story of a Country Medical College* (Montpelier: Vermont Historical Society, 1945), pp. 125-131.

[4] N. M. Burr to Peter Turner, March 4, 1789, MS, New York Academy of Medicine, New York, N.Y., hereafter NYAM.

[5] Titus Morgan to Mason F. Cogswell, March 29, 1804, quoted in Barnes Riznik, "The professional lives of early nineteenth-century New England doctors," *J. Hist Med.*, 1964, *19* 3.

[6] Laban Ladd to Josiah Bartlett, Jr., November 30, 1819, June 26, 1822, Bradley Noyes to Josiah Bartlett, Jr., March 28, 1824, Ezra Bartlett to Josiah Bartlett, Jr., May 15, 1824, Noyes to Ezra Bartlett, October 26, 1824, Bartlett Papers, Library of Congress, Washington, D.C., hereafter LC.

[7] Ezra B. Gale to Josiah Bartlett, Jr., October 13, 1821, September 9, 1822, Bartlett Papers, LC; Ezra Bartlett to Josiah Bartlett, Jr., September 7, 1833, Bartlett Papers, New Hampshire State Library, Concord; N.H., hereafter NHSL; David Wilder, *The History of Leominster or the Northern Half of the Lancaster New or Additional Grant, from the Date of the Deed from George Tahanto, Indian Sagamore, to July 4, 1852* (Fitchburg: Reveille Office, 1853), pp. 100-101.

leaped or fell overboard and drowned. A nearby doctor urged his son to occupy the vacancy at once, but he was too late since three other physicians had "gone in with the same objective."[8]

Under such cut-throat conditions, preceptors often advised their students to seek "stands" on the Western and Southern frontiers. There it was assumed they would face less competition from other practitioners and find more patients. In the 1790s, a New Hampshire physician, recognizing that the "profession is much crowded in N.E.," suggested that "young doctors" go "South to get training and wealth and afterwards take what positions they pleased."[9] Another, after making a similar recommendation, noted in 1815 that his pupils had left, dispersing into Vermont, Pennsylvania, and Ohio. A decade later, a New Hampshire doctor counseled his protégés to "take a tour thro' the western parts . . . of New York and Pennsylvania" since "prospects [here] are not very flattering." Throughout the 1830s, the West and South were still regarded as offering more favorable opportunities for practice than New England.[10]

This study deals with Easterners who heeded such advice and is based on their letters to friends and families. Young, untried, and partially educated, they were least able to compete for employment in their native region. At first, those who migrated to the frontier were apprenticeship-trained. After 1815, many had attended a course of medical lectures. Few of these practitioners had an M.D. degree. Some interrupted their education because of inadequate financial resources and carried with them a burden of debts owed to relatives, patrons, or preceptors. In many cases, they went reluctantly, considering the removal a temporary expedient and intending to return after gaining experience and money. Uncertain as to a final destination, their goal was to find an eligible stand which meant a limited geographical area with "enough clients with enough wealth to support a physician."[11]

The decision to migrate was easy compared to the task of reaching the frontier. Those heading south could choose a quick water passage.

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[8] Ezra Bartlett to Josiah Bartlett, Jr., July 12, 1832, Bartlett Papers, NHSL.

[9] Levi Bartlett to ?, 1795, MS, Dartmouth College Library, Hanover, N.H.

[10] Ezra Bartlett to Amos Gale, August 12, 1815, Bartlett Papers, NHSL; Ezra Bartlett to Josiah Bartlett, Jr., July 19, 1825, Josiah Bartlett, Jr. to Ezra Bartlett, November 19, 1832, Bartlett Papers, LC.

[11] William G. Rothstein, *American Physicians in the Nineteenth Century* (Baltimore: Johns Hopkins University Press, 1972), p. 12. No statistics are available regarding the number of frontier physicians who held M.D. degrees or had attended medical lectures. It has been estimated that prior to 1840 "three-fourths of the doctors in the Middle West received their training by means of the apprentice system." Madge E. Pickard and R. Carlyle Buley, *The Midwestern Pioneer: His Ills, Cures, & Doctors* (New York: Henry Schuman, 1946), p. 120.

Samuel Griffin, fleeing his Massachusetts creditors in 1790, sailed from Boston and disembarked in Virginia twenty-one days later. For those journeying west, however, the bulk of the trip was by stage or horseback over miserable roads which made travel troublesome and time-consuming. Charles H. Wetmore of Connecticut recorded in 1819 that traveling with his wife and three children he took almost ten weeks to cover the 609 miles to Worthington, Ohio. In 1808, Peter Allen rode horseback from Connecticut to Kinsman, Ohio, carrying in his saddlebags his complete stock of instruments, books, and medications.[12] Others, with more extensive baggage, such as James P. Henderson, who shipped several boxes and chests, frequently found that the arrival of their valuable paraphernalia was delayed or that it was lost in transit. Sickness along the way was a constant hazard. Nathan McIntosh's journey to Ohio was interrupted by an attack of smallpox which detained him for several weeks in Meadville, Pennsylvania. Stopping temporarily in Marietta, Ohio, he proceeded on to Clarksville, Virginia, with his wife and child of six months through eighty miles of forest "in constant danger of Indians." In order to "keep the baby from crying" and thus attracting the Indians, it was "dosed with paregoric and a handkerchief was used to suppress its cries."[13] Horatio Conant of Vermont, on his way to Detroit, spent the summer of 1815 struggling to Buffalo and completed the tour on a Lake Erie schooner which offered wretched accommodations and food consisting of "yellow Ohio pork and hard peas, as soft as boiled shot." Before reaching its destination, the vessel almost foundered in a violent storm and was threatened by "thousands of wild Indians."[14]

Upon arrival on the frontier, some physicians soon established relatively stable practices. This was usually true of those who had reliable information on local conditions prior to leaving the East. David Long was attracted to Cleveland in 1810 by a letter from a resident there who advised him that it was an "excellent location for a young and ambitious

[12] Samuel Griffin to Edward A. Holyoke, September 6, 1790, Holyoke Papers, Essex Institute, Salem, Mass., hereafter EI; Charles H. Wetmore, "Common Place Book," Wetmore Papers, Ohio Historical Society, Columbus, Ohio, hereafter OHS; Howard Dittrick, *Pioneer Medicine of the Western Reserve* (Cleveland: Academy of Medicine of Cleveland, 1932), p. 25.

[13] James P. Henderson to Matthew Henderson, April 23, 1829, Henderson Papers, Western Reserve Historical Society, Cleveland, Ohio, hereafter WRHS, Edmund Cone Brush, "The pioneer physicians of the Muskingum Valley," *Ohio Archaeol. Hist. Pub.*, 1891, *3*· 245-246.

[14] Malthus A. Ward to Ezra Bartlett, September 21, November 27, 1815, Bartlett Papers, NHSL; Ephraim Williams, "Personal reminiscences," *Mich. Pion. Coll.*, 1886, *8*. 233-234; B. O. Williams, "Early Michigan: sketch of the life of Oliver Williams and family," *ibid.*, 1880, *2* 36-40; Eklanah Watson, *Men and Times of the Revolution* (New York: Dana, 1856), pp. 420-426.

physician.'' He found Cleveland to be an unincorporated village of fifty-seven people, eight or ten dwellings, surrounded by wilderness. However, since the nearest doctor was twenty-five miles away and there was an opportunity to teach school to supplement his practice at first, he judged his location satisfactory. Samuel P. Hildreth undertook the long trek from Connecticut to Ohio on the basis of reports from Dr. Jabez True of Marietta that a ''good opening for a young physician'' was available. In similar fashion, Conant was enticed to the Detroit area by letters from an older brother who had lived there for many years. He soon established himself successfully in nearby northwestern Ohio at Maumee.[15]

For other doctors, however, especially those who lacked information and set out with no particular destination in mind, the discouragement engendered by the inconveniences and hazards of reaching the frontier was compounded by the unexpected lack of opportunity awaiting them. Wherever and whenever they went, acceptable stands were difficult to find. Few were fortunate enough to receive the advice given a young Vermonter who was contemplating a move to Georgia. The opportunity ''here would not warrant your coming into this section of the country,'' his correspondent warned, for ''it is well provided'' with practitioners and ''has more than can get a good living.'' The ''only way to get practice would be to underbid those already practicing.''[16] In 1819, David Plumer of Massachusetts was told frankly that Ohio doctors ''get but little employment except in the larger towns, where they are very plenty.''[17] Lacking such sage counsel, many Easterners soon discovered for themselves the accuracy of these pessimistic views.

Benjamin L. Oliver, who transferred from Salem, Massachusetts, to Virginia in 1790, complained of the difficulties which inevitably attended the finding of a favorable spot to practice in those parts. In his search, Griffin spent nearly two months in Virginia without finding any lucrative business and traveled over 600 miles before settling in Williamsboro, North Carolina. The main attraction of the town was that the ''nearest physician is 10 miles on the west; on the north 20; on the east 20; and 40 or 50 on the south.''[18] In 1809, Phineas Sanborn, who had received his training from a rural New Hampshire physician, confronted similar difficulties in Virginia and finally set up practice at Northwest River Bridge where the closest physician was twelve miles away. Although "this has been a tolerably good country" for doctors, he declared, "now it is very hard to find a place."[19] Malthus A. Ward, after a course of lectures at Dartmouth, set out from New Hampshire for the West in 1815. Progressing slowly through New York, he missed "no opportunity of ascertaining a good place . . . but found none." The area was "greatly overstocked." Tired and short on cash as a result of his 900-mile trek, he stumbled on a haven in Kittanning, Pennsylvania, where only one doctor lived.[20] By the 1830s, even the possession of an M.D. degree gave no assurance of doing well. When Ezra Bartlett, Jr., was graduated from Dartmouth in 1832, opening a practice near his home was so unlikely that he even scrutinized Latin America as a possible location. He decided instead to follow his brother Levi to Virginia. Hanging out his shingle in the small hamlet of Warminster, he grieved that the best locations in Virginia were already occupied.[21]

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[15] Stanley Griswold to David Long, May 28, 1810, quoted in Dittrick, *Pioneer Medicine*, p. 16; Brush, ''Pioneer physicians,'' p. 245; Frederick O. Conant, *A History and Genealogy of the Conant Family in England and America* (Portland. n.p., 1887). pp. 246-247

[16] Charles G. Rolfe to Sebra Austin, October 19, 1836, Rolfe Papers, Georgia Historical Society, Savannah, Ga., hereafter GHS

[17] Benjamin Thurston to David Plumer, April ?, 1819, Plumer Papers, OHS.

[18] Benjamin L Oliver to Holyoke, April 23, 1790, Griffin to Holyoke, September 6, 1790, Holyoke Papers, EI.

At least Oliver, Griffin, Sanborn, Ward, and Bartlett found stands. Other migrants were not so fortunate. Thomas Farley of Massachusetts forayed as far west as Ohio in 1788 but found so few people that he became discouraged and returned home. About the same time, Solomon Drown hurried back to Rhode Island when an Indian war erupted in Ohio.[22] A college friend of Ward visited him in Kittanning in 1816 and reported that he had scoured New York and Pennsylvania in quest of a stand without success and was returning heartily dissatisfied to Vermont. Simon Woodward departed New Hampshire on horseback in 1815 and followed a "lonely course over the solitary mountains of Vermont." Halting briefly in Williston, he decided to move on to Ohio. He wintered in Chatham, New Jersey, where he assisted the local doctor during a dysentery epidemic. His employer, who had recently returned from the West, attempted to dissuade him from his project, arguing that his "prospect was truly gloomy" since "so many had migrated to that country, it had got over stocked." Unconvinced, Woodward determined to see and judge for himself. He was thwarted in his plans and eventually returned to New Hampshire, pessimistic about his chosen profession.[23]

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[19] Phineas Sanborn to Ezra Bartlett, August 12, 1811, Bartlett Papers, NHSL.

[20] Ward to Ezra Bartlett, September 21, November 27, 1815, Bartlett Papers, NHSL.

[21] Ezra Bartlett to Josiah Bartlett, Jr., July 12, 1832, Ezra Bartlett, Jr. to Josiah Bartlett, Jr., April 2, 1833, Bartlett Papers, NHSL; Josiah Bartlett, Jr. to Ezra Bartlett, August 23, 1832, Bartlett Papers, LC.

[22] Brush, "Pioneer physicians," pp. 241-242.

[23] Ward to Ezra Bartlett, August 12, 1816, Bartlett Papers, LC, Simon Woodward to Ezra Bartlett, July 7, November 18, 1815, Bartlett Papers, NHSL.

That the admonition given to Woodward was accurate is also supported by the fate of a friend, Samuel Eastman. Setting out at the same time as Woodward, he reached Marietta where he called on Dr. True, a resident of Ohio since 1788. A decade earlier True had encouraged young New England doctors to locate in the West, but now he gave Eastman no encouragement of success in that country. Nevertheless, Eastman pushed on to Cincinnati and then took an excursion of about 400 miles into Kentucky visiting ten of the principal towns. The pilgrimage was fruitless. In 1816 he was teaching school in Urbana, Ohio, having joined the ranks of unemployed physicians.[24]

Even those who chanced upon an initial stand were dissatisfied more often than not. With only six houses in Northwest River Bridge, Sanborn guessed that his preceptor would be displeased with the "idea of the place" but "not more than I was with the reality." He had no choice but to stay until he found a better place.[25] "God grant this may be an end of my Journeying and a happy Support," an exhausted Wetmore recorded after several unsuccessful moves; apparently his prayer went unanswered, for he was soon seeking a new location in Ohio.[26] "If it is the will of Providence," Samuel Lessley wrote from Mississippi, "I will spend a few more years in this country, then I will seek a place of enjoyment or at least one that will be more convenient for me."[27] Ward wished "most heartily to better my circumstances," but confessed "I do not know how."[28] After more than three months in New Bern, North Carolina, William Boyd reported that his prospects were no better than when he arrived. "I am not pleased with this place," Bartlett announced, and "shall look out for a better stand . . . which if I can find, I shall cheerfully leave this deserted town." Warminster at that time contained only three houses, two stores, and a population of twenty-five.[29]

Given such discontent, it is not surprising that shifts in locations by the practitioners were frequent. Oliver moved so regularly that he was dubbed "a wandering star." Although "much admir'd by those who have observed him," he was not "long enough stationary in one point to take the attention of many."[30] Griffin was also constantly in motion. In 1802, he informed a correspondent that for over a decade he had "been much on the wing and [had] explor'd what is here call'd the western country," including Kentucky and even the Wabash Nation. Discovering no place to his liking, he returned to Virginia, married the daughter of a wealthy merchant, and retired to his own plantation in Bedford County. Satisfied with this "pleasant asylum" of 1,000 acres, he oversaw his numerous slaves and almost renounced his profession.[31] In time Sanborn abandoned Northwest River Bridge for Camden County, North Carolina, where he supplemented his practice by farming. Ward, remaining in Kittanning for a year, relocated first in Pittsburgh and later in a newly established village in Indiana with the exotic name of Hindostan.[32] After two unproductive years in Centerville, Ohio, Storm Rosa moved to Painsville in 1818. McIntosh was similarly dissatisfied with Clarkesville, Virginia, and returned to Marietta, Ohio. After two weeks in Shanesville, Ohio, Henderson complained that he had only lanced an absess and extracted a tooth. While not entirely sanguine, he hoped that it was "the day of small things and not to be despised as it may be the precursor of more brilliant and auspicious times." His hopes for Shanesville were not realized, and he soon moved on to Coshocton and eventually to Newville, Ohio.[33] The reason for these constant changes was a continuing disillusionment with frontier medicine and life.

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[24] Ward to Ezra Bartlett, September 21, 1815, Samuel Eastman to Ezra Bartlett, August 21, 1815, March 22, 1816, Bartlett Papers, NHSL.

[25] Sanborn to Ezra Bartlett, August 12, 1811, Bartlett Papers, NHSL.

[26] Wetmore, "Common Place Book," Wetmore Papers, OHS.

[27] Samuel Lessley to David Baird, November 17, 1829, Baird Papers, OHS.

[28] Ward to Ezra Bartlett, August 12, 1816, Bartlett Papers, LC.

[29] William Boyd to James Boyd, February 21, 1820, MS, NYAM; Ezra Bartlett, Jr. to Josiah Bartlett, Jr., July 15, 1833, Bartlett Papers, NHSL; *A New and Comprehensive Gazetteer of Virginia* (Charlottesville: J. Martin, 1836), pp. 241-242.

The simple but fundamental economic problem for the doctors was a lack of clients with enough money to pay for treatment. Rejoicing that his Virginia practice had increased slightly, Oliver lamented that the scarcity of money and poverty of the inhabitants still prevented him from receiving the emoluments he had expected. Henry Manning, recently arrived in the Mahoning Valley from Connecticut, waited six months before he had half the business to support him. With his practice in Northwest River Bridge reduced to one-third of the previous year, Sanborn was making only sufficient to meet expenses. "My practice has been such to average me only about $20 per month," Bartlett reported from Warminster.[34] Unable to collect fees from his impoverished Ohio patients and fearful of being left penniless, Henderson begged his father for a loan. From Indiana, Joseph W. Chamberlain wrote his parents that he was barely managing to pay his board of three dollars a week. "The times have been so hard" in Pennsylvania, Ward mourned "that I have been able to collect very little money." Although services performed totaled $700, much of that was "charged on book" and never would be collected.[35]

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[30] Griffin to Holyoke, September 6, 1790, Holyoke Papers, EI.

[31] Griffin to Levi Bartlett, May 26, 1802, MS, Richmond Academy of Medicine, Richmond, Va., hereafter RAM.

[32] Sanborn to Levi Bartlett, January 25, 1824, MS, Boston University Library, Boston, Mass., hereafter BUL; Ward to Ezra Bartlett, December 23, 1816, February 2, 1818, May 24, 1819, Bartlett Papers, LC

[33] Dittrick, *Pioneer Medicine*, p. 46; Brush, "Pioneer physicians," p. 246; Henderson to Henderson, April 24, 1829, Henderson Papers, WRHS.

With remunerations of a frontier practice meager, it was difficult for physicians to repay debts incurred for their education. Ward took three years to settle his student expenses in New Hampshire. William G. Hill of North Carolina was forced to pay off his encumbrances of $300 in corn rather than hard cash. Burr Bradley was still making payments to his dead preceptor's estate on a debt of $400 contracted over ten years before he arrived in Indiana. Voicing the sentiments of other pioneer doctors in similar financial straits, he wrote that "my income depends upon my practice and my success in collecting."[36] In many instances, neither was extensive.

With too few patients with too little money, the physicians decried the good health of clients, looked forward to the months when many were sickly, and sought unhealthy areas in which to practice. Henderson was not at all happy with his new practice in Ohio since the village was uniformly healthy. In neighboring Indiana, Chamberlain announced that "it has been uncommonly healthy in all this country . . . and consequently I have not been in very great demand."[37] It was so healthy in New Bern, North Carolina, that Boyd had little or nothing to do. Griffin's sole criticism of Williamsboro, North Carolina, was that it was a little too healthy. "It is very healthy at present," Sanborn fretted from Virginia.[38] Ward's health was "excellent and that of the people such as to afford me little business lately."[39] Practice was "dull at present," Bartlett reported, "as the sickly season has not commenced." The very healthy neighborhood around Westminster almost persuaded him to move to the tidewater where it was more "sickly," and Chamberlain considered leaving Indiana for Mississippi for the same reason.[40] Some physicians doctored only during the morbid months of late summer and early fall and kept school or farmed the rest of the year. Oliver and Sanborn were enticed to the Dismal Swamp because it was insalubrious and Ward to Hindostan because of a strange plague.[41]

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[34] Oliver to Holyoke, April 23, 1790, Holyoke Papers, EI; John C. Melnick, *A History of Medicine in Youngstown and Mahoning Valley, Ohio* (Youngstown: n.p , 1973), p. 30; Sanborn to Ezra Bartlett, May 31, 1812, Ezra Bartlett, Jr. to Josiah Bartlett, Jr., July 15, 1833, Bartlett Papers, NHSL.

[35] Henderson to Henderson, April 23, 1829, Henderson Papers, WRHS; Joseph W. Chamberlain to Milo Chamberlain, July 23, 1835, Chamberlain Papers, Indiana Historical Society, Indianapolis, Ind., hereafter IHS; Ward to Ezra Bartlett, August 12, 1816, Bartlett Papers, LC.

[36] Ward to Ezra Bartlett, September 21, 1815, Bartlett Papers, LC; Ward to Ezra Bartlett, August 12, 1816, Bartlett Papers, NHSL; William G. Hill to William Hill, May 11, 1835, William Hill Papers, The Southern Historical Collection, University of North Carolina, Chapel Hill, N.C.; Burr Bradley to Peter DeWitt, September ?, 1819, October 9, 1823, January 10, 1829, Burr Bradley Papers, IHS.

[37] Henderson to Henderson, April 23, 1829, Henderson Papers, WRHS; Chamberlain to Chamberlain, July 23, 1835, Chamberlain Papers, IHS.

[38] Boyd to Boyd, February 21, 1820, MS, NYAM, Sanborn to Ezra Bartlett, August 12, 1811, Bartlett Papers, NHSL.

Doctors bitterly resented the frontiersmen's failure to avail themselves of their professional services. Sanborn believed that "if the people were to call on Physicians here as much as they do in the Northern States, there would be plenty of business." But they only sent for him "when they think they shall Die, if they do not."[42] Henderson recorded the same experience in Ohio: "I was often not called till the last gasp, when human effort was unavailing and when I could be the scape goat for a number of 'old goodies' who had been tampering with the disease with noxious herb teas and other trash." People tried to "struggle through . . . unassisted, or die in their attempt."[43] Even during an outbreak of influenza, Ward noted that people did not believe it useful to consult a physician. In other instances, such as for snakebites, the "people think physicians have no skill . . . and never employ them."[44] What was absent, Bartlett felt, was "what we call a good run of practice in the North."[45]

Faced with such adverse financial conditions, doctors often described their profession in entrepreneurial rather than humanitarian terms and frequently considered patients purely from an economic point of view. Sanborn, Ward, Henderson, and others typically referred to their professional activities as a "business" and compared their fees and profits to those of farmers and merchants.[46] A "deplorable case" should have brought Ward "a good sum," but he feared "I shall hardly get much" since the patient was "poor." Obstetrics was the "most lucrative part of the trade and who ever could monopolize it would be on the high road to wealth." Unfortunately, in Pittsburgh it was dominated by five or six midwives.[47] The same was true in Shanesville, Ohio, where Henderson denounced his midwife competitor as an old hag. "The only chance . . . to make a Bill," Boyd frankly confided in North Carolina, "is to give a great quantity of Medicines and charge well on them."[48] Alexander H. Baldridge, after riding twelve miles to visit a dying patient in Indiana, recorded in his diary: "This is a dead loss Shure and Sirtion [sic] for me."[49]

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[39] Ward to Ezra Bartlett, August 12, 1816, Bartlett Papers, LC.

[40] Ezra Bartlett, Jr. to Josiah Bartlett, Jr., July 15, 1833, Bartlett Papers, NHSL; Levi Bartlett, Jr. to Ezra Bartlett, August 12, 1832, LC; Chamberlain to Chamberlain, June 9, 1838, Chamberlain Papers, IHS.

[41] Oliver to Holyoke, April 23, 1790, Holyoke Papers, EI; Harry Q. Holt, *History of Martin County, Indiana*, 2 vols. (Paoli: Stout's Print Shop, 1953), 1: 28-29

[42] Sanborn to Ezra Bartlett, May 31, 1812, Bartlett Papers, NHSL.

[43] Henderson to ?, 1831, Henderson Papers, WRHS.

[44] Ward to Ezra Bartlett, November 27, 1815, Bartlett Papers, NHSL; Ward to Ezra Bartlett, August 12, 1816, Bartlett Papers, LC.

[45] Ezra Bartlett, Jr. to Josiah Bartlett, Jr., April 2, 1833, Bartlett Papers, NHSL.

[46] Sanborn to Ezra Bartlett, August 12, 1811, May 31, 1812, Ward to Ezra Bartlett, November 27, 1815, Bartlett Papers, NHSL; Henderson to Henderson, April 23, 1829, Henderson Papers, WRHS.

A shortage of clients and income inevitably led to extreme animosity among the competitive physicians. In 1815, Woodward relinquished his stand in Williston, Vermont, because of the unremitting hostility of the other doctor in town. With six antagonistic practitioners already on the scene, E. L. Minor found Royalston, Ohio, too uncomfortable and retreated to Centerville. Henderson reported bitterly that a new doctor in Perrysville, Ohio, had "succeeded in taking two or three patients from me."[50] Griffin characterized his North Carolina rivals as "self-swollen sons of pedantic absurdity" who "push on in their bloody career 'till the surrounding mortality . . . brings them to a pause." After another physician settled two miles away, Sanborn complained that they both had to live on what was insufficient to maintain one.[51] Ward dared not leave Kittanning for a trip to New England: "To leave this for a month or even weeks would . . . be equivalent to a permanent abandonment—my place would certainly be occupied by another." He faced "malignant and powerful" opposition of nine or ten other physicians in Pittsburgh and accused his "antagonist" in Kittanning of conspiring to expel him from the community.[52] The profession, Henry E. Bartlett charged from Alabama, was "degraded by blackguards."[53]

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[47] Ward to Ezra Bartlett, November 27, 1815, Bartlett Papers, NHSL; Ward to Ezra Bartlett, February 2, 1818, Bartlett Papers, LC

[48] Henderson to Henderson, April 23, 1829, Henderson Papers, WRHS; Boyd to Boyd, February 21, 1820, MS, NYAM.

[49] Alexander H. Baldridge, "Diary, 1849-1853," Baldridge Papers, OHS.

[50] Woodward to Ezra Bartlett, November 18, 1815, Bartlett Papers, NHSL; Chester P. Sweet, "Medicine in Fairfield County, 1800-1850," *Ohio Med. J.*, 1964, *60*. 563; Henderson to Henderson, n.d. (c. 1833), Henderson Papers, WRHS.

[51] Griffin to Holyoke, September 6, 1790, Holyoke Papers, EI; Griffin to Levi Bartlett, April 4, 1794, MS, RAM; Sanborn to Ezra Bartlett, August 12, 1811, Bartlett Papers, NHSL.

[52] Ward to Ezra Bartlett, August 12, 1816, February 2, 1818, Bartlett Papers, LC; Ward to Ezra Bartlett, September 21, 1815, November 27, 1815, Bartlett Papers, NHSL.

[53] Henry E. Bartlett to John W. Francis, March 29, 1828, MS, NYAM.

Had these rigors of frontier practice been the only problems faced by the physicians, it would have justified the description by one of them of the "cursed fate of a Country Doctor."[54] However, the unhealthy months for which they yearned and the unwholesome sites which they sought laid low doctors as often as patients. Oliver deserted his first stand because it was so noxious that he was constantly ill. "I enjoy better health at present than I have . . . since I left New Hampshire," Sanborn exulted. "Last year and the year before July brought me a severe bilious fever."[55] Chamberlain informed his father that he had been stricken with bilious diarrhea but had survived. Eastman was seized with a malady in Ohio which continued forty days with unabated violence and took him to the edge of the grave. A Nestor of the profession theorized that doctors were no different from others: they also had to undergo a seasoning before becoming acclimated.[56]

Whether looking after their own well-being or that of others, frontier doctors faced enormous handicaps. Most, as already shown, were inexperienced and inadequately trained. Even when they were not, as Griffin discovered, observations made on medical therapy in the climate of New England were of little service for his practice in the South. Moreover, the doctors were often deficient in equipment and medicine. Ward began practice with a few needles, a pair of scissors, and a turnkey for pulling teeth. Theodatius Garlick even forged his own amputating, trephining, and obstetrical instruments in Ohio. It was very difficult to locate medical books in North Carolina, Sanborn wrote. Norfolk booksellers refused to stock periodicals and to send to Philadelphia for them was too inconvenient. Ward had only two medical books and was without aid in surgery. Benejah Nicholas of Bertie County, North Carolina, was forced to order medicine from distant Norfolk while Amos Wright of Tallmadge, Ohio, walked over one-hundred miles to Pittsburgh for the same purpose.[57]

Correspondence with preceptors became one of the main sources of advice. Inquiries were general, specific, and theoretical. "I shall be very much oblig'd to you," Oliver implored, "for any medical information."[58] From Pennsylvania, Ward wished to know the best treatment for St. Anthony's Fire, and, from Virginia, William L. Graham sought guidance in the cure of gonorrhea. "Your opinion on the most rational cause of what are called bilious fevers . . . would be very thankfully received by me," Sanborn stated, "as I would be glad to establish a theory . . . on a solid foundation." In fact, he asked his old preceptor "to correct me with the same freedom that you would if I were living with you . . . for I see my own ignorance more now than before."[59]

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[54] *Ibid*

[55] Oliver to Holyoke, April 23, 1790, Holyoke Papers, EI, Sanborn to Ezra Bartlett, August 12, 1811, Bartlett Papers, NHSL.

[56] Chamberlain to Chamberlain, July 23, 1835, Chamberlain Papers, IHS; Brush, "Pioneer physicians," pp. 255-256; Eastman to Ezra Bartlett, March 22, 1816; Ezra Bartlett to Josiah Bartlett, Jr., August 31, 1832, Bartlett Papers, NHSL.

[57] Griffin to Ezra Bartlett, April 4, 1794, MS, RAM, Ward to Ezra Bartlett, September 21, 1815, Bartlett Papers, NHSL; "Autobiography of Dr. Theodatius Garlick" (typed copy), Howard Dittrick Museum of Historical Medicine, Cleveland, Ohio; Sanborn to Ezra Bartlett, May 31, 1812, Bartlett Papers, NHSL; Receipts, Bills, Orders for Medicine, Benejah Nicholas Papers, North Carolina Division of Archives and History, Raleigh, N.C ; A. S. McCormick, *The History of Medicine in Summit County, Ohio* (New York Hobson Book Press, 1946), p. 3

Theories and therapies reflected the prevailing Eastern dogmas. Marsh miasmata, fogs, and vapors were thought to be the pernicious influences which made many geographical areas extremely insalubrious. Heroic measures were the leading remedies. Treating fevers in Ohio, Hildreth prescribed bleeding early in the attack followed by evacuants. For the more serious malignant types, he used either "sub-carbonate of soda" or finely powdered charcoal mixed with fresh, lively yeast. For an asthmatic sufferer, another Ohio doctor, Joseph Stanton, ordered a cathartic, two doses of calomel, a blister on the lungs, and bleeding. The victim, he reported, appeared to be mending. In similar cases, Joseph C. Strong of Kentucky lost five or six patients when relying solely on blistering, bleeding, and cathartics. Only total immersion in hot water plus snakeroot tea with paregoric produced a cure. While he frequently bled his patients, Sanborn thought it "best to be careful of spilling the vital fluid (altho I am pretty much of a Rushite)."[60] When Virginia was struck by an extensive epidemic of influenza, Oliver found "one moderate bleeding useful . . . aided in some cases with blister." Other patients required liberal use of the Bark and wine. In a few instances, the disease was accompanied by a bilious habit and was greatly relieved by the use of cathartics, which he revealed was true in his case. Another prevalent southern disease, "Chronic Diarrhea," however, was "generally fatal in its termination." Despite the usual prognosis, Oliver "achieved extraordinary recovery" by "giving Lime-Water in Milk for a long time." A "very eminent Physician" from Williamsburg had seen the "disease cured by Borax."[61]

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[58] Oliver to Holyoke, June 30, 1792, Holyoke Papers, EI.

[59] Ward to Ezra Bartlett, August 12, 1816, Bartlett Papers, LC; William L Graham to John W Francis, November 8, 1829, John W. Francis Papers, New York Public Library, New York, N.Y.; Sanborn to Ezra Bartlett, August 12, 1811, May 31, 1812, Bartlett Papers, NHSL.

[60] Samuel P. Hildreth, "Recollections of early epidemics in Ohio—especially that of the year 1807," *Med. Counc.*, 1856, *2* 3; Joseph Stanton to Benjamin Stanton, June 31, 1823, Stanton Manuscripts, OHS; Joseph C. Strong to Lemuel Kollack, March 27, 1816, Kollack Collection, GHS; Sanborn to Ezra Bartlett, May 31, 1812, Bartlett Papers, NHSL.

Frontier doctors had little choice but to treat patients as best they could. For palsy, Baldridge ordered the application of two spoonfuls of the essence of mustard to the body from the hips down. Barlett boasted that he had lost but two patients among his large slave clientele. "One was a black child . . . afflicted with general dropsy from its infancy." The other was an adult who had ruined his constitution by intemperance. A cathartic and Dover's powder gave quick relief, but the patient was "imprudent in eating fruit," and when Bartlett visited him "it was but to witness the departure of his spirit to the eternal world."[62] Ward no doubt spoke for many pioneer doctors when he expressed the fear that his patient's "high expectations" of his "skill will be suddenly cut short and his real ignorance betrayed."[63]

Besides these trials and tribulations, the practitioners recoiled from the crudeness of pioneer life and deplored its loneliness. A Connecticut Yankee practicing in western New York quickly grew perfectly sick of the place and the inhabitants. "As for the country," penned another New Englander from Georgia, "I don't like it—Not equal to the Green, free hills of Vermont."[64] Ward judged society in Kittanning as disgusting with the people evidencing intemperance, laziness, ignorance, and knavery. The Virginia "herd" was "barbarous and ignorant," according to Griffin. They came to court "to drink whiskey, and some to fight, to gouge, and bite off ears, noses, fingers, or any other part . . ." He never attended without carrying arms.[65] The drinking and gambling among the high orders in Virginia appalled Bartlett. Henderson found particular fault with his prospective German clientele in Ohio: "Their priests look like clodhoppers—their merchants like sots as they are, and their women like beasts of burden which is their literal character." He shrank from such society in despair.[66] Kentuckians were "raw and unpolished," Eastman observed. Their "taste may be summed up in a few words viz; Whiskey and Tobacco, Negroes and Dogs, Hog and Hominy, Smut and Profanity."[67]

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[61] Oliver to Holyoke, April 23, 1790, Holyoke Papers, EI.

[62] Baldridge, "Prescription Book, 1833," Baldridge Papers, OHS; Ezra Bartlett, Jr. to Josiah Bartlett, Jr., July 15, 1833, Bartlett Papers, NHSL.

[63] Ward to Ezra Bartlett, September 21, 1815, Bartlett Papers, NHSL.

[64] Wetmore, "Common Place Book," Wetmore Papers, OHS, Rolfe to Austin, October 19, 1836, GHS.

[65] Ward to Ezra Bartlett, November 27, 1815, Bartlett Papers, NHSL; Griffin to Levi Bartlett, September 30, 1802, MS, RAM.

[66] Ezra Bartlett, Jr. to Josiah Bartlett, Jr., April 2, 1833, Bartlett Papers, NHSL; Henderson to Henderson, n.d. (c. 1833), Henderson Papers, WRHS.

Not only did these transplanted New Englanders pine for a more refined society but also for the companionship of friends and family. Although some gained comrades and wives, others were racked by loneliness and homesickness. Without mail for over a year, Sanborn pleaded for news of loved ones. He was but a "poor young Yankee . . . separated from all youthful acquaintances" who "must throw away all tho'ts of home."[68] "The long time of my absence from Salem, Oliver wrote to Massachusetts, "makes me anxious to hear from my friends."[69] "I have heard nothing from H[averhill] since I left it," grieved Woodward. "My fathers family how are they? Are they all dead? I have written three times to them but have had no answer . . . tell them to write without delay for my patience is insupportable."[70] Ward begged his preceptor to write soon "to expel Ennui, Nostalgia, etc. . . . I am truly a stranger in a strange land."[71]

The doctors reacted to the frontier in different ways. Some such as Samuel Griffin and Phineas Sanborn never accepted their new surroundings. Still they remained. Griffin longed for his native soil but did not give up the prosperity that a Virginia plantation afforded him. He was killed by one of his slaves in 1812. Sanborn acquired little wealth or practice, but he took on the responsibility of a wife and children and continued to eke out an existence in the swamps and bogs of Carolina. For some the frontier spelled opportunity. Henry Manning remained in Youngstown, Ohio, until his death in 1869 and became a man of outstanding medical skill and business acuity. Joseph W. Chamberlain of Indiana also prospered professionally as well as economically. Burr Bradley won recognition in Salem, Indiana, both as a doctor and respected civic leader. But for others frontier conditions only strengthened their resolve to return home. After several years in Virginia, Benjamin L. Oliver happily returned to his Massachusetts home and practiced there until his death in 1835. Malthus A. Ward remained in the West for eight years, left when financially able, received an M.D. degree, and established himself as a physician in Salem, Massachusetts. Ezra Bartlett, Jr., came to despise Warminster and after only a year willingly accepted his father's offer to share his practice in Haverhill, New Hampshire.[72]

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[67] Eastman to Ezra Bartlett, August 21, 1815, March 22, 1816, Bartlett Papers, NHSL.

[68] Sanborn to Ezra Bartlett, May 31, 1913, Bartlett Papers, NHSL.

[69] Oliver to Holyoke, April 23, 1790, Holyoke Papers, EI.

[70] Woodward to Ezra Bartlett, November 18, 1815, Bartlett Papers, NHSL.

[71] Ward to Ezra Bartlett, August 12, 1816, Bartlett Papers, LC.

The frontier played a significant role in the history of early American medicine. New England doctors viewed it as a safety valve to relieve the pressures of an over-crowded profession. It attracted the young, inexperienced, and partially trained—those who were in the weakest competitive position. Few would have moved to the West or South had there been more opportunity in their native region. The hard realities of frontier life and practice were a rude surprise to the young practitioners. Available stands rarely supplied an adequate income, and the resulting economic rivalry degraded professional attitudes and standards. Many never acclimated to the lonely and crude existence. Despite these hardships, the frontier seemed to hold out more promise than New England. For some it provided permanent employment. For others it provided a stepping-stone to a more rewarding career elsewhere.

The generalizations of this survey are open to the charge that the experiences of these doctors were unique. Granted a more representative sample is needed. A complete picture awaits the old-fashioned and painstaking task of discovering the unpublished letters, remembrances, and diaries of those forgotten and anonymous New England physicians who sought stands on the Western and Southern frontier.

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[72] Griffin to Levi Bartlett, March 10, 1803, MS, RAM; Sanborn to Levi Bartlett, January 25, 1824, MS, BUL; Sanborn to Ezra Bartlett, May 31, 1812, Bartlett Papers, NHSL; J. Melnick, *Medicine in Youngstown*, pp. 29-35; see biographical material in Chamberlain Papers and Burr Bradley Papers, IHS; "Benjamin Lynde Oliver, M.D.," *Essex Inst Hist. Coll* , 1935, *71:* 324-325; William Barlow and David O. Powell, "Student views of the medical institution at Dartmouth in 1813 and 1814," *Hist. N.H.*, 1976, *31:* 100-101; J. Q. Bittinger, *History of Haverhill, New Hampshire* (Haverhill: Cohos Steam Press, 1888), pp. 293-294.

"TO BE USED ONLY UNDER THE DIRECTION OF A PHYSICIAN": COMMERCIAL INFANT FEEDING AND MEDICAL PRACTICE, 1870-1940*

RIMA D. APPLE

Until the early 1870s most American women breast-fed their infants, and medical advisers generally cautioned against the use of cow's milk formulas, except in emergencies. By the 1930s, however, many women in the United States commonly fed their infants modified cow's milk and often did so under the direction of their physicians. This dramatic shift from mother's milk to bottle formulas resulted from several factors including the rise of pediatrics, the growing availability of pure milk and infant-food products, the increase in hospital births, the changing role and image of women, and, most importantly, the development of a new relationship between commercial infant-food manufacturers and the medical profession.[1] Several companies marketed relatively simple-to-use infant foods in the 1870s and, though many physicians originally were reluctant to employ these products, by 1930 doctors had grown to appreciate the importance of bottle feeding for their daily practice. Nevertheless, they recognized that distribution and use of these foods without some form of medical control could be not only nutritionally hazardous, but could undermine the income and prestige of the medical profession as well. Manufacturers, who in the nineteenth century had directed their advertising to both the public and physicians, realized by the twentieth century that their continued success in marketing these products lay in cultivating the physicians' self-interest. By the 1930s infant-food companies and physicians had established a mutually advantageous relationship. This paper traces the development of this association and the ways in which it increased medical control in an area not previously within the physicians' domain.

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[1] These factors will be discussed more fully in my dissertation. "What's a mother to do? Alternatives to breast-feeding in the United States, 1870-1940," in progress. For some contemporary opinions, see Nathan Allen, "The decline of suckling power among American women," *Babyhood*, 1889, *5*: 111-115; Alexander McAlister, "Infant feeding," *JAMA*, 1900, *35*: 209-210; M. C. D., "The bottle baby," *Good Housekeeping*, 1906, *42*: 356-358, H. M. McClanahan, "Supplemental breast-feeding in infants," *JAMA*, 1912, *59*: 1877-1879, and Frank Howard Richardson, *Simplifying Motherhood* (New York: G. P. Putnam's Sons, 1925).

Late nineteenth-century medical and lay publications reveal widespread interest in the topic of nutrition, with artificial infant feeding receiving particular attention.[2] As scientists produced increasingly detailed comparative analyses of human and cow's milk, physicians developed ever more complicated suggestions for "humanizing" cow's milk. By the 1890s writers on pediatrics advocated the so-called American way, or percentage method, of modifying cow's milk for infant feeding. As developed by Dr. Thomas Morgan Rotch, of Harvard University Medical School, the procedure involved diluting cow's milk in order to lower its relatively higher percent of casein (protein), and then adding sugar and cream to the mixture in order to increase the sugar and fat content so that the resultant liquid more closely approximated the composition of human milk. Since infants differ in digestive ability and nutritional needs, and because these change as the individual grows, Rotch and his followers insisted on the importance of precisely tailoring the formula to each individual case with the accuracy of a drug prescription. Variation of as little as 0.1% of a given ingredient could mean the difference between a well-fed infant and a sick baby. Such "scientific" formulas demanded extensive knowledge on the part of the prescribing physician, and their preparation could be difficult and time consuming.[3] To alleviate some of the problems inherent in the preparation of these formulas, Rotch, in 1891, established the Walker-Gordon Milk Laboratory in Boston to prepare modified cow's milk formulas according to physicians' prescriptions and to deliver the bottles directly to consumers. Soon other medical practitioners, such as Dr. L. Emmett Holt of New York City, encouraged the establishment of laboratories in their cities. By 1903, Walker-Gordon Milk Laboratories could be found also in Philadelphia, Chicago, Baltimore, Buffalo, Cincinnati, Cleveland, Grand Rapids, Pittsburgh, St. Louis and Washington, and even in the Canadian cities of Montreal, Ottawa and Toronto, as well as in London, England. Though available in many parts of the United States, laboratory-modified milk remained an expensive product.[4]

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[2] See, for example, [H. Lassing], "Infant foods," *The New York Analyst*, new series, 1885, *1*(1): 8; and Nathan Oppenheim, *The Care of the Child in Health* (New York. Macmillan Company, 1900).

[3] Thomas E. Cone, Jr., *History of American Pediatrics* (Boston: Little, Brown, 1979), pp. 136-138. For some examples of such formulas, see Edwin Rosenthal, "Milk-mixtures as food for infants," *JAMA*, 1898, *31*· 1104-11; and "Report of the Medical Society of the State of New York, 96th Annual Meeting," *JAMA*, 1902, *38:* 472-474

Many physicians felt frustrated with the complexities and costs involved in the percentage method of modifying cow's milk for infants, especially as this was a time when, according to Dr. John M. Keating, advice on infant feeding could be "either the portal of entrance to a large practice, or the starting point of embarrassments and disappointments" in the establishment of a private practice.[5] Dr. Charles W. Townsend reported in 1899 to the Boston Society for Medical Improvement that infant-feeding formulas were often "dreaded" by the physicians who not only "revolt at doing an algebraic or even considerable arithmetical sum at the bedside" but also were reluctant "to explain to the mother what they have been led to believe is a difficult and complicated process." Such doctors preferred to employ a milk laboratory or told "the mother to get such and such a patent food and follow the directions."[6] The availability of infant foods, complete with instructions for use, points to an important aspect of late nineteenth-century infant feeding: medical practitioners did not have a monopoly on infant-feeding advice. A mother might turn to a physician for recommendations on "bringing up the baby by hand," but she also had other sources—friends, relatives, periodicals, and the manufacturers of infant foods—from which she could learn about bottle-feeding.

At this time advertisements for numerous infant-food preparations appeared in medical journals, newspapers and domestic magazines. The directions for mixing supplied with these foods contrasted sharply with the complex procedures involved in calculating and preparing formulas by the percentage method. One simply dissolved Mellin's Food in hot water and milk; and one needed only to add water to Horlick's Malted Milk or Nestlé's Milk Food. In common with many other less well-known infant foods developed from the 1860s through the early twentieth century, these three products claimed to be variants of the formula devised by Justus von Liebig, the celebrated German chemist.[7] Gustav Mellin, a British chemist, developed his product in the 1860s. At the urging of an Englishwoman residing in Boston, the Doliber and Goodal Company introduced Mellin's Food in the United States in 1876.[8] In 1882, James Horlick, a pharmacist and former employee of the Mellin's Company in England, devised another Liebig-type product, Horlick's Malted Milk, in Racine, Wisconsin.[9] In Switzerland, Henri Nestlé created another variant of Liebig's formula by combining condensed milk, sugar and wheat flour. Nestlé opened the first small Nestlé's Milk Food plant in 1868, and by 1873 the product was on sale in the United States and at least sixteen other countries.[10]

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[4] C. G. Jennings, "Some recent advances in pediatrics," *JAMA*, 1893, *21:* 832; Helen Churchill Candee, "The Walker-Gordon Process, a food for sick babies," *Babyhood*, 1894, *10:* 262-264; J. J. Thomas, "Laboratory feeding, with especial reference to the modified milk fund," *Cleveland Med. Gaz.*, 1901, *16:* 583-593; and Thomas Morgan Rotch, "The essential principles of infant feeding and the modern methods of applying them," *JAMA*, 1903, *41*· 349-354, 416-421.

[5] John M. Keating, "Clinical lectures: Infant feeding," *Arch. Ped.*, 1884, *1:* 88.

[6] Charles W. Townsend, "Remarks on infant feeding, with special reference to the home modification of milk," *Boston Med. & Surg. J.*, 1899, *140:* 275-276.

[7] I wish to thank Dr. James Harvey Young for pointing out the important distinction between the "respectable wing" and the "quackish wing" of the infant-food industry. However, most nineteenth-

To develop the broadest possible market, manufacturers appealed to both the medical profession and the general public. In most of their advertising, they used the same techniques and even the same advertisements. (See Figure 1.) Medical testimonials added a veneer of scientific respectability to the use of these infant-food products. Companies also distributed brochures and samples at medical conventions, while their advertisements almost always offered free booklets and free samples to doctors and mothers.

Some writers on pediatrics deprecated the use of commercial infant foods, feeling "that trade or money has no soul nor conscience";[11] others believed "that proprietary foods are always useless and frequently dangerous."[12] Many objected to commercially prepared infant foods on nutritional grounds, claiming that these products were the cause of high rates of infant mortality and morbidity and correlating what are now clas-

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century medical practitioners cited in this paper did not make this distinction. As will be seen later in this paper, twentieth-century physicians did begin to differentiate between "ethical" and "non-ethical" infant foods. For information on some of the disreputable nineteenth-century foods, see James Harvey Young, " 'Even to a suckling infant': nostrums and children," *Trans. Studies Coll. Phys. Phila.*, 5th ser., 1979, *1*: 19-21.

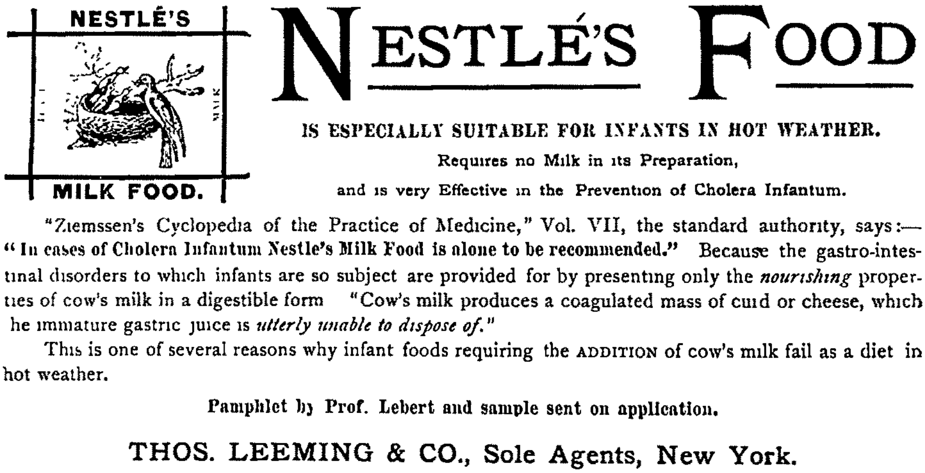
[8] Frank Presby, *The History and Development of Advertising* (Garden City, N.Y.: Doubleday, Doran, 1929), pp. 390-391.

[9] Patrick Campbell, typescript history of the Horlick's Corporation, undated, no pagination, in the Horlick's Corporation Papers, 1873-1974, The State Historical Society of Wisconsin, Division of Archives and Manuscripts, Madison, Wisconsin (hereafter referred to as HCP); and letter from Frank E. Hartman, Executive Vice-President, to Harry Hanson, editor of the *New York World-Telegram World Almanac*, dated 31 January 1949, in the HCP.

[10] Henri Nestlé, *Memorial on the Nutrition of Infants* (Vevey, 1875); Nestlé and Anglo-Swiss Holding Company Limited, *This is Your Company* (N.p., 1946); and Jean Heer, *World Events, 1866-1966 The First Hundred Years of Nestlé*, trans. A. Bradley et al. (Lausanne, Switzerland: Nestlé's, 1966), pp. 39-42.

[11] A[braham] Jacobi, *Infant diet: A paper read before the Public Health Association of New York* [May 8, 1873] (New York: G. P. Putnam's Sons, 1873), pp. 27-28

[12] P. Ralph Egan, "A case of infantile scorbutus, in Montana," *JAMA*, 1895, *24:* 184-185.



NESTLÉ'S

MILK FOOD.

NESTLÉ'S FOOD

IS ESPECIALLY SUITABLE FOR INFANTS IN HOT WEATHER.

Requires no Milk in its Preparation,

and is very Effective in the Prevention of Cholera Infantum.

"Ziemssen's Cyclopedia of the Practice of Medicine," Vol. VII, the standard authority, says:—" In cases of Cholera Infantum Nestle's Milk Food is alone to be recommended." Because the gastro-intestinal disorders to which infants are so subject are provided for by presenting only the *nourishing* properties of cow's milk in a digestible form "Cow's milk produces a coagulated mass of curd or cheese, which he immature gastric juice is *utterly unable to dispose of.*"

This is one of several reasons why infant foods requiring the ADDITION of cow's milk fail as a diet in hot weather.

Pamphlet by Prof. Lebert and sample sent on application.

THOS. LEEMING & CO., Sole Agents, New York.

Figure 1. This advertisement appeared in 1888 in the *Journal of the American Medical Association*, the *American Analyst* and *Babyhood*.

sified as vitamin-deficiency diseases with artificial infant diets.[13] Other authors linked bottle-feeding, particularly when proprietary infant foods were used, with "indigestion and gastrointestinal catarrh." They pointed out that mortality from summer diarrhea, also described as summer complaint and cholera infantum, was more frequent among bottle-fed than breast-fed infants.[14] Several physicians felt that "the position occupied by the physician in comparison with that of the vendors of patent foods is very humiliating. . . ."[15] Dr. Thomas Morgan Rotch echoed this sentiment:

> It would seem hardly necessary to suggest that the proper authority for establishing rules for substitute feeding should emanate from the medical profession, and not from non-medical capitalists. Yet when we study the history of substitute feeding as it is represented all over the world, the part which the family physician plays, in comparison with numberless patent and proprietary foods administered by the nurses, is a humiliating one, and one which should no longer be tolerated.[16]

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[13] "Editorial: Rickets," *JAMA*, 1892, *18*: 267-268; W. S Christopher, "Infant feeding," *JAMA*, 1892, *18* 641-643; J. Lewis Smith, "The causes of rachitis," *Babyhood*, 1893, *9* 108; and Egan, "Infantile scorbutus."

[14] William Lee, "Report on the advances and discoveries made in the study of contagious and infectious diseases," *JAMA*, 1884, *2* 623-624; and J Lewis Smith, "Quantity of food required in infancy," *Babyhood*, 1885, *1*· 235.

[15] Gillham P. Robinson, "Medical Association of Georgia, Annual Meeting, April, 1899: Infant feeding in health and disease," *JAMA*, 1899, *32*. 996.

[16] T M. Rotch, "The general principles underlying all good methods of infant feeding," *Boston Med. & Surg. J.*, 1893, *129*· 506.

Others saw the promotions of infant-food companies as demeaning to the medical profession, because "they take it for granted that no one knows anything about these foods but those who write the advertisements."[17]

Though physicians generally advocated that a mother breast-feed her infant, most accepted the necessity of bottle-feeding for cases in which the mother was unwilling or incapable of nursing.[18] To many physicians, wet-nursing, the other alternative, presented seemingly insurmountable financial, physiological, and moral obstacles. Given a choice between wet-nurse and bottle, most preferred the latter.[19] Some doctors even asserted that scientifically and conscientiously prepared artificial food was equal to, if not better than, any but the best breast milk.[20] Despite the medical and professional criticism of commercial infant foods, a significant number of physicians did advise their patients to use the products. Writers on pediatrics such as Townsend recognized that many a physician, overwhelmed with the intricacies of scientific feeding, turned in self-defense to the simplicity of patent foods. The 1888 report of the Sub-committee on Infant Feeding of the AMA documents the lack of unanimity even among leading medical authorities on the question of infant foods. The question "Will any ordinary artificial 'infant foods' now on the market thoroughly nourish the child without the addition of cow's milk?" elicited responses ranging from "No artificial food will efficiently nourish an infant unless cow's milk be added. . . ." to "Yes, there are one or two," and "I think that a good milk food answers the requirements very acceptably."[21]

Physicians frequently conceded that some foods were satisfactory for some babies, but they also claimed that no one formula was adequate for all. "We should state in unmistaken terms to mothers that because one baby has been brought up on a given artificial food, it does not follow that the same food will agree with the next baby," declared Charles Warrington Earle at the AMA meeting in 1888. "One food nourished a given baby well, but may, if administered persistently, kill the next baby."[22]

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[17] Ephraim Cutter, "Medical food ethics now and to come," *JAMA*, 1893, *20:* 240.

[18] Jacobi, *Infant Diet*, pp. 23-24.

[19] See, for example, Charles Warrington Earle, "Summer diseases of children, and infant diet," *Arch. Ped*, 1884, *1:* 559; "Against the wet-nurse," *Boston Med. & Surg. J.*, 1885, *113:* 308-309, and Arthur V. Meigs, "The artificial feeding of infants," *Trans Amer. Ped. Soc*, 1889, *1*· 81-82.

[20] See, for example, Binnie, "A plea for the artificial feeding of infants with cow's milk," *Arch. Ped.*, 1884, *1:* 648-649; and Edward Reynolds, "The Obstetrical Society of Boston, 16 April 1900," *Boston Med. & Surg. J.*, 1900, *143* 371.

[21] "Report of Sub-committee on Infant Feeding," *JAMA*, 1888, *11*· 206-210.

[22] Charles Warrington Earle, "Infant feeding," *JAMA*, 1888, *11*· 151-152.

Sometimes half-heartedly, sometimes confidently, doctors admitted that these foods could be "useful aids to the physician," and even "valued and beneficient additions to the physicians' armament."[23] Rather than ignore all commercial foods, such practitioners served as mediators between the manufacturers and the consumer. One physician in 1899 wrote: "On the physician devolves the great burden of educating people beyond the indiscriminate use of proprietary foods, and the importance of accuracy in the preparation of the food prescribed."[24]

The growth and success of pediatric investigation, which had begun in the late nineteenth century, not only encouraged the development of pediatrics as a specialty, but also increased pediatric work among general practitioners. The child-care literature of this period—manuals written by physicians and laypersons, mother's magazines and governmental brochures—increasingly directed parents to the physician, in sickness and in health, and stressed the importance of medically-directed infant feeding in preventive medicine. One historian of pediatrics has characterized the early twentieth century as "the era of the Baby Feeder,"[25] a period when physicians began to see more clearly the important role they could play in decreasing infant mortality and morbidity through good nutrition. As the popularity of bottle-feeding grew, these physicians became more uncomfortable with products that made their advice superfluous. A mother might not take her child to the doctor if she could read about various products in women's magazines, decide for herself which one was best, and then walk into a drugstore, buy it and use it following the directions printed on the label. Furthermore, given the perplexities inherent in complicated infant formulas, both for the physician to calculate and for the mother to prepare, it was no wonder that many busy practitioners gave up the whole problem in despair and "resorted to the use of the patent baby foods as the easiest way out of the difficulty." Once this happened the mother could follow the printed instructions and did not need to return to the doctor.[26] No matter how the mother learned about such a product, the result could be the same: a doctor was not needed to supervise the feeding of the infant. Such a situation could be physically unhealthy for the infant and economically harmful to the physician.

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[23] Jennings, "Advances in pediatrics" and, "Editorial: The food of the infant," *JAMA*, 1902, *39*. 258-259

[24] Henry E. Tuley, "Progress in pediatrics," *JAMA*, 1899, *33*. 998.

[25] Borden S. Veeder, "Periods in the life of the American Pediatric Society: Infancy," *Trans. Amer. Ped. Soc.*, 1938, *50*. 54.

[26] Eugene A. Darling, "The use of whole milk and fat diminished milk in infant feeding," *Boston Med & Surg J.*, 1911, *165*· 747.

As early as 1910 some manufacturers decided that gaining the respect and good will of the medical community could be potentially more profitable than advertising to the laity. In 1911 Dr. Jerome S. Leopold, a pediatric specialist at the New York Milk Commission, spoke to Joe Quilligan, senior sales representative for the Mead Johnson Company, about the infant-feeding method devised by Dr. Heinrich Finkelstein in Germany. Leopold wanted to promote this formula in the United States but could find no one willing to produce the maltose-dextrin needed for it. The Mead Johnson Company agreed to undertake the commercial production of Dextri-Maltose, and in late 1911 tested it at the Babies' Ward of the New York Post-Graduate Hospital.[27] Mead Johnson unveiled Dextri-Maltose at the 1912 AMA convention and promoted this milk modifier, as well as its later infant-feeding products, exclusively to the medical profession.

Although Dextri-Maltose was not a prescription item, the physician advised the mother to buy it and explained how to prepare it; no directions appeared on the package. To make the physician's job easier, Mead Johnson provided a series of free aids. Feeding calculators were especially popular. (Figure 2 shows a 1935 calculator, quite similar to those supplied in the 1910s and 1920s.) By dialing the infant's age and weight, the doctor could see at a glance the recommended amounts of milk, water and Dextri-Maltose to use, as well as the size and number of feedings per day. The back of the calculator gave hints on how to modify the formulas for special cases. The company also distributed a wide range of other items to make "it easier for the general practitioner to obtain better cooperation for mothers."[28] For instance, it offered to supply physicians with formula blanks imprinted with the doctor's name and address. Each blank told the mother how to mix the formula and feed it to her child, reminded her to bring the baby back to the physician for a checkup and a new formula on a specified date. Mead Johnson proudly announced the benefits of its public advertising policy in many of its advertisements and brochures for doctors. The company frequently stressed that "when Dextri-Maltose is used as the added carbohydrate of the baby's food, the physician himself *controls* the feeding problem," and in later years it claimed that this policy was "responsible in large measure for the advancement of the profession of pediatrics in this country because it

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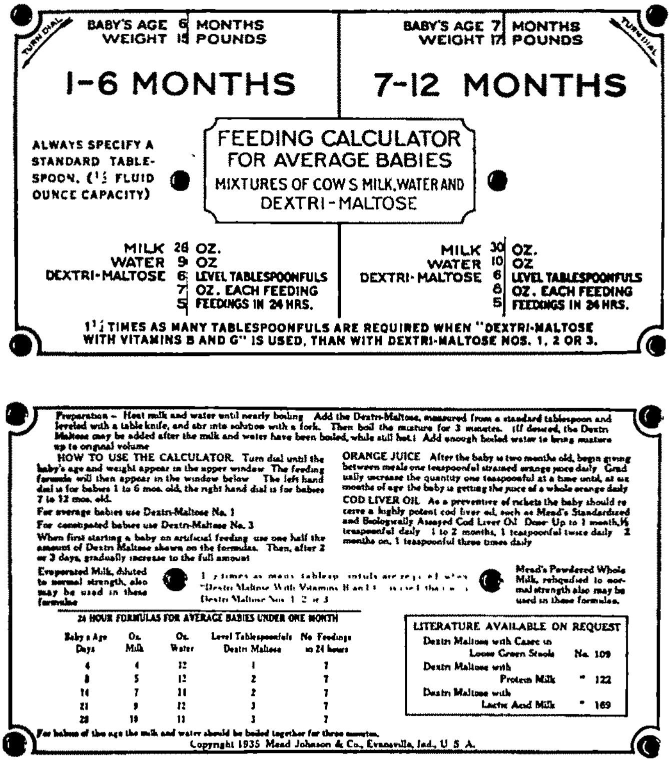
[27] "A glimpse of Mead Johnson," unpublished typescript, [1961?], in the Mead & Johnson Company, Business Records, 1895-1971, Indiana State University-Evansville, Special Collections, Evansville, Indiana [hereafter referred to as MJ and Co], pp. 8-9.

[28] "Commercial exhibit: Mead's Infant Feeding Service," *JAMA*, 1923, *80*. 1578



TURN DIAL

BABY'S AGE 6 MONTHS
WEIGHT 15 POUNDS

1-6 MONTHS

BABY'S AGE 7 MONTHS
WEIGHT 17 POUNDS

7-12 MONTHS

TURN DIAL

ALWAYS SPECIFY A STANDARD TABLESPOON. (½ FLUID OUNCE CAPACITY)

FEEDING CALCULATOR
FOR AVERAGE BABIES
MIXTURES OF COW'S MILK, WATER AND
DEXTRI-MALTOSE

MILK 28 OZ.
WATER 9 OZ
DEXTRI-MALTOSE 6 LEVEL TABLESPOONFULS
7 OZ. EACH FEEDING
5 FEEDINGS IN 24 HRS.

MILK 30 OZ.
WATER 10 OZ
DEXTRI-MALTOSE 6 LEVEL TABLESPOONFULS
8 OZ. EACH FEEDING
5 FEEDINGS IN 24 HRS.

1½ TIMES AS MANY TABLESPOONFULS ARE REQUIRED WHEN "DEXTRI-MALTOSE WITH VITAMINS B AND G" IS USED, THAN WITH DEXTRI-MALTOSE NOS. 1, 2 OR 3.

Preparation – Heat milk and water until nearly boiling. Add the Dextri-Maltose, measured from a standard tablespoon and leveled with a table knife, and stir into solution with a fork. Then boil the mixture for 3 minutes. (If desired, the Dextri-Maltose may be added after the milk and water have been boiled, while still hot.) Add enough boiled water to bring mixture up to original volume

HOW TO USE THE CALCULATOR. Turn dial until the baby's age and weight appear in the upper window. The feeding formula will then appear in the window below. The left hand dial is for babies 1 to 6 mos. old, the right hand dial is for babies 7 to 12 mos. old.

For average babies use Dextri-Maltose No. 1

For constipated babies use Dextri-Maltose No. 3

When first starting a baby on artificial feeding use one half the amount of Dextri-Maltose shown on the formulas. Then, after 2 or 3 days, gradually increase to the full amount

ORANGE JUICE After the baby is two months old, begin giving between meals one teaspoonful strained orange juice daily. Gradually increase the quantity one teaspoonful at a time until, at six months of age the baby is getting the juice of a whole orange daily

COD LIVER OIL As a preventive of rickets the baby should receive a highly potent cod liver oil, such as Mead's Standardized and Biologically Assayed Cod Liver Oil. Dose: Up to 1 month, ½ teaspoonful daily. 1 to 2 months, 1 teaspoonful twice daily. 2 months on, 1 teaspoonful three times daily

Evaporated Milk, diluted to normal strength, also may be used in these formulas

1½ times as many tablespoonfuls are required when "Dextri-Maltose With Vitamins B and G" is used than with Dextri-Maltose Nos. 1, 2 or 3

Mead's Powdered Whole Milk, reliquefied to normal strength also may be used in these formulas.

24 HOUR FORMULAS FOR AVERAGE BABIES UNDER ONE MONTH

Baby's Age Days	Oz. Milk	Oz. Water	Level Tablespoonfuls Dextri Maltose	No. Feedings in 24 hours
4	4	12	1	7
8	5	12	2	7
14	7	11	2	7
21	9	12	3	7
28	10	11	3	7

LITERATURE AVAILABLE ON REQUEST

Dextri Maltose with Casec in Loose Green Stools	No. 109
Dextri Maltose with Protein Milk	" 122
Dextri Maltose with Lactic Acid Milk	" 169

For babies of this age the milk and water should be boiled together for three minutes.

Copyright 1935 Mead Johnson & Co., Evansville, Ind., U. S. A.

Figure 2. Front and back sides of the Mead Johnson Dextri-Maltose Feeding Calculator, 1935.

brought control of infant feeding under the direction of the medical profession."[29]

Though such a statement ignored other factors influencing the growth of pediatrics, such as declining infant mortality rates, advances in preventive medicine, and the increased popularity of regular periodic medical examinations for children, other companies certainly endeavored to emulate Mead Johnson's success by imitating the company's so-called "ethical" policy of infant-food advertising. A good example is the advertising designed to promote the product S.M.A. (Simulated Milk Adaptation). Dr. H. J. Gerstenberger of Western Reserve University of Cleveland, first presented this infant food, then called G-R, at the 1915 meeting of the American Pediatric Society.[30] He and his co-workers tested the product at the Babies' Dispensary and Hospital in Cleveland. The Laboratory Products Company that produced and distributed Gerstenberger's formula under the name S.M.A. directed its advertising campaigns primarily towards doctors. The copy typically stated that S.M.A. was "to be used only under the direction of a physician." Its simplicity—the mother need add only water—"rouses the parents' enthusiasm, and adds to the prestige of the physician."[31] A few S.M.A. advertisements did appear in lay journals like *Hygeia,* but they always directed the consumer to the physician.

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[29] Herbert F. Ashly, "History of Mead Johnson and Company," Slide presentation, 1968 typescript, in MJ and Co Examples of these advertisements may be found especially in *JAMA*, 1924, *83*(13): 50 and *Boston Med. & Surg. J.*, 1925, *192*(26): xv.

Both Dextri-Maltose and S.M.A. were new products. Their promotional campaigns provide some insight into the growing strength of pediatric practice. Both Mead Johnson and the Laboratory Products Company decided from the outset that their success lay in convincing the medical profession to use their products; product recognition among the general public was secondary. This trend becomes more apparent when one examines how firms that had been successful in the nineteenth century changed their advertising policies in the twentieth century.

As organized medicine in the 1910s and 1920s debated the advertising techniques of infant-food producers, these older manufacturers, such as Nestlé's, altered their approach to the profession and the general public. Physicians recognized the necessity for proprietary foods and often looked kindly on products such as Dextri-Maltose, which made "no extravagant claims."[32] To modify cow's milk remained "a very complicated science."[33] Even after the demise of the percentage method, journal articles proposing so-called "simpler methods . . . seemed terrifyingly like treatises on mathematics or higher astronomy," according to one physician.[34] Many medical practitioners instead recommended the less confusing patent foods for their patients who bottle-fed their babies. Even Dr. John Lovett Morse, one of the staunchest proponents of modified cow's milk formulas, grudgingly conceded the efficacy of prepared foods.

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[30] H. J. Gerstenberger et al., "Studies in the adaptation of an artificial food to human milk," *Amer. J. Dis. Child*, 1915, *10.* 249-265

[31] See, for example, S.M.A. advertisement, *JAMA,* 1921, *77:* 23.

[32] Lewis Webb Hill, "A critical discussion of sugar in its relation to infant feeding," *Boston Med. & Surg. J.,* 1918, *179·* 11-12.

[33] Personal correspondence, Samuel X. Radbill, 31 May 1979.

[34] Joseph Brennemann, "Periods in the life of the American Pediatric Society: Adolescence, 1900-1915," *Trans. Amer. Ped Soc.,* 1938, *50:* 65.

> There is no reason for giving any proprietary food as there is nothing in any of them which cannot be put into milk at home or in the laboratory. If a proprietary food agrees and modified milk does not, it simply means that the doctor has not thought of the right thing to use . . . .[35]

But doctors preferred products they could control. The commercial success of Dextri-Maltose and S.M.A. demonstrated to other companies that such advertising policies could result in a satisfactory compromise between the needs of the manufacturers to sell their products, and the desire of the physician to control the distribution and use of the infant foods.

The Nestlé's company policy provides a good example of how one manufacturer reacted to the increased influence of the medical profession on infant feeding. Advertisements for its Milk Food continued to appear in lay journals, as they had for decades. They still offered mothers booklets and free samples, and even added feeding calculators for physicians. Then, significantly, in 1924 the company announced a new product, Lactogen, which "sold only on the prescription or recommendation of a physician. No feeding instructions appear on the trade package."[36] At about the same time the Horlick's company developed its new product, Horlick's Milk Modifier, which was "offered for sale on physician prescription only." This company also provided feeding calculators and formula blanks for physicians.[37]

These company actions probably resulted from the work of an AMA committee investigating proprietary infant foods. In 1923 the Philadelphia Pediatric Society had urged the AMA to halt infant-food advertising in its lay journal *Hygeia*. Such advertising, the Society contended, "implies recommendation by the members of the American Medical Association . . . [which] will tend to undo all the work which thousands of the members of the medical profession have been trying to accomplish in the education of the public to the fact that infants cannot be fed in this indiscriminant manner . . . ."[38] The advertisements continued to appear, however, and, in 1924, the Section on Diseases of Children of the AMA established a committee "to investigate the general question of advertising of proprietary foods in medical journals and to the laity."[39] In its 1925 report, the committee acknowledged that "it is impracticable at the present time to dispense entirely with all proprietary foods." While stressing the nutritional importance of breast-feeding and "the dangers of artificial feeding of infants, particularly when carried out without supervision of medical men," it found heartening the "disposition on the part of many manufacturers of proprietary foods to cooperate with the medical profession and its medical journals."[40]

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[35] John Lovett Morse, "Infant feeding and digestive disturbances," *Boston Med. & Surg. J.*, 1914, *170:* 242.

[36] See, for example, Lactogen advertisement, *JAMA*, 1925, *84:* 16.

[37] Samples of materials sent to physicians may be found in HCP.

[38] "Communication from Philadelphia Pediatric Society on advertising of infant foods," *JAMA*, 1923, *81:* 36.

[39] "Minutes of Section on Diseases of Children," *JAMA*, 1924, *82:* 2042.

Companies increasingly utilized the prestige and services of medical practitioners. For example, in the 1930s, at the instigation and under the direction of Gerstenberger, the Laboratory Products Company developed an S.M.A. powder that incorporated spray-dried orange juice in order to enhance the anti-scorbutic element of the product.[41] Similarly, after Dr. William McKim Marriott published his data on successful use of evaporated milk in infant feeding, the industry cited his studies in advertising and informational brochures for physicians. Furthermore the Pet Milk Company hired him as a consultant to show the company's detailmen the right and wrong ways to contact a physician.[42] When Mead Johnson designed a series of "education advertisements" to "point out to mothers the advantages of medical supervision," the company appealed to medical practitioners. Before publishing them, the company sent the copy to physicians around the country, soliciting "criticism, praise, or even condemnation."[43]

When the AMA established its Committee on Foods, within the Council on Pharmacy and Chemistry, to approve the content, claims, and advertising of food products in general, infant-food companies presented their products for AMA approval. By 1930 evaporated milks such as Borden's, milk modifiers such as Mellin's, and complete formulations such as Horlick's had won the Seal of Acceptance. It was not until 1932 that the Committee published specific advertising guidelines for infant foods. These insisted that "every infant, breast fed and doubly so the artificially fed, should be under the supervision of the physician who is experienced and skilled in the care and feeding of infants." The new rules sought to restrain manufacturers from publishing formulas or distributing them to non-medical personnel because:

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[40] "Report of Section on Diseases of Children," *JAMA*, 1925, *84:* 1744.

[41] Henry J. Gerstenberger et al., "Observations on the effect of aging on the potency of spray-dried anti-scorbutic material," *J. Ped.*, 1933, *3.* 93-111.

[42] Martin L. Bell, *A Portrait of Progress A Business History of Pet Milk Company from 1885 to 1960* (St. Louis, Missouri: Pet Milk Co., 1962), pp. 101-102; Thomas E. Cone, *200 Years of Feeding Infants in America* (Columbus, Ohio. Ross Laboratories, 1976), pp. 83-84; *Infant feeding with irradiated evaporated milk: A statement for physicians* (Chicago: Irradiated Evaporated Milk Institute, 1935).

[43] Letter dated September 26, 1930, in MJ and Co.

> The feeding of an infant by routine feeding formulas and instructions distributed by food manufacturers, or according to directions, printed material, or advice of any person other than the attending physician who can personally observe the condition of the baby, may seriously endanger the health of the infant.
>
> The promulgation of feeding formulas in advertising to the laity is considered to be in conflict with the best experience, authoritative judgment, and basic principles in infant feeding, and is not permissible.[44]

The Mellin's Food Company quickly changed its labels and, as can be seen in Figure 3, made sure that physicians were aware of the change. The company no longer advertised in non-medical journals, but limited itself strictly to medical publications. Nestlé's did not have to change its Lactogen promotional campaigns, but it did stop advertising Nestlé's Milk Food to the general public and now limited the distribution of feeding directions to physicians only. Many other companies followed suit.

Not all manufacturers were amenable to the requirements of the Committee on Foods. The labels and advertising for Horlick's Malted Milk continued to "present explicit infant feeding formulas for infants aged from one week to 12 months." Despite the Committee's recommendation that the company alter its copy, the Horlick's Company refused.

> The manufacturer when informed of these opinions expressed himself unwilling to remove the feeding formulas from advertising addressed to the public for merchandising reasons. The acceptance for Horlick's Malted Milk is being withdrawn for the preceding reasons; the product will therefore no longer be listed among the Committee's accepted foods.[45]

The withdrawal of the AMA's previous acceptance of Horlick's Malted Milk meant that Horlick's could no longer advertise in AMA publications or participate at AMA meetings. In addition many major medical journals, such as the *New England Journal of Medicine,* received advertising contracts through the AMA's Cooperative Medical Advertising Bureau. This group would approve only copy for "drugs, therapeutic agents and food which are acceptable to the respective approving committees of the American Medical Association."[46] Thus withdrawal of the Committee on Foods' acceptance further limited Horlick's promotional activities by preventing the company from advertising in many major medical journals.

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[44] "Committee on Foods," *JAMA*, 1932, *99*. 391.

[45] "Committee on Foods," *JAMA*, 1933, *100:* 1175.

[46] "Editorial: The advertisement section," *N. Eng. J. Med* , 1938, *218:* 940-941.

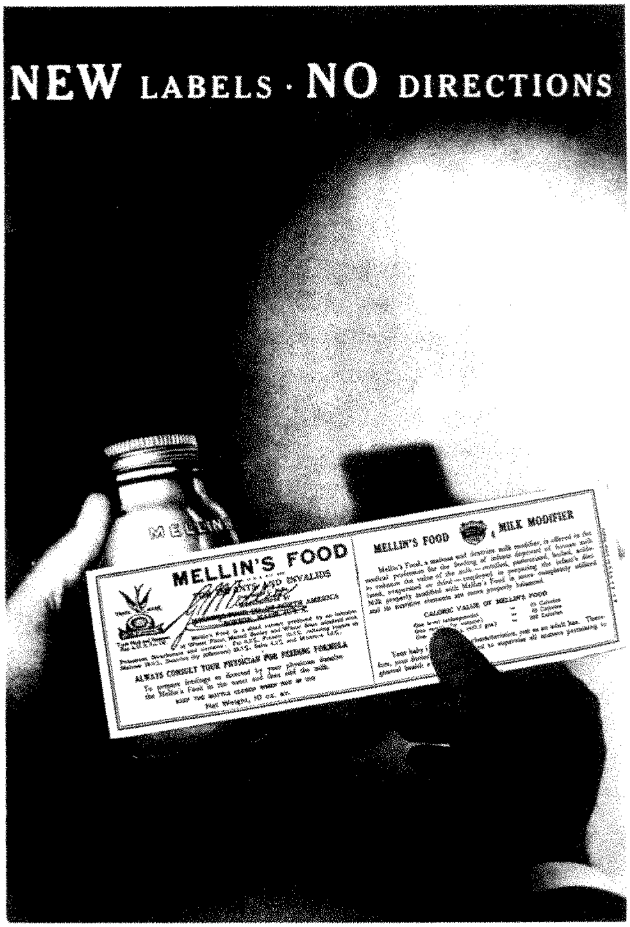
NEW LABELS · NO DIRECTIONS
MELLIN'S FOOD
MELLIN'S FOOD
MILK MODIFIER
ALWAYS CONSULT YOUR PHYSICIAN FOR FEEDING FORMULA

Figure 3. In this 1932 advertisement from the *Journal of the American Medical Association*, Mellin's boldly announced its new advertising policy.

In 1946, Frank E. Hartman, Horlick's Executive Vice-President, blamed the medical profession for the company's declining sales. He contended that pediatricians did not want infant foods designed for fixed-feeding formulas; rather they demanded products with more flexibility. With the use of products like Dextri-Maltose the medical practitioner could manipulate the composition of the infant's formula. Hartman claimed that physicians felt they needed such adaptable products "if the profession was to extend its activities to a profitable point." Since Horlick's Malted Milk was a fixed-feeding product, it did not suit this purpose. (The fact that the AMA accepted S.M.A., also a fixed-feeding product, somewhat vitiates this claim.) Furthermore, he alleged, when reputable medical journals denied Horlick's advertising space, as a result of the decision of the Committee on Foods, they eliminated a vital link between the firm and doctors.[47]

Though the demise of the Horlick's company in this country is more complex than this analysis would suggest, it is undoubtedly true that the action of the Committee on Foods significantly lessened the use of Horlick's products in infant feeding. Companies that allowed the AMA Committee to approve their promotional material fared much better financially. The Mead Johnson Company succinctly summarized how this symbiotic bond functioned:

> When mothers in America feed their babies by lay advice, the control of your pediatric cases passes out of your hands, Doctor. Our interest in this important phase of medical economics springs, not from any motives of altruism, philanthropy or paternalism, but rather from a spirit of enlightened self-interest and co-operation because [our] infant diet materials are advertised only to you, never to the public.[48]

Between 1870 and 1940, modes of infant feeding in this country changed significantly thereby altering the relationship between the infant-food companies and the medical profession. Manufacturers of infant foods realized earlier than the medical profession the monetary opportunities possible in artificial infant feeding. They catered to the wants of the public, while acknowledging the medical aspects of the situation. Widespread promotion of these products encouraged their use by both mothers and physicians. In the twentieth century organized medicine recognized that infant feeding was a major aspect of pediatrics and that proper use of infant foods could provide an entry into general pediatric practice. Given the confusing array of proposed cow's-milk formulas, even a specialist like Dr. John Lovett Morse could opine that some of these infant foods "are more rational than the routine mixtures prescribed by the doctor."[49] Rationalization or simplification of the prescription was one important advantage of commercial infant foods; another was the comparative ease of preparation. Most manufactured foods presented fewer difficulties for the mother, a point that companies such as S.M.A. stressed in their advertising. A simple-to-prepare food could mean less likelihood of error in the process of preparation ("even Mrs. ____ can prepare it properly") and added appreciation for the doctor ("Mrs. ___ will thank you for sparing her much worry and trouble").[50]

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[47] Frank E. Hartman, typescript history of Horlick's, 1946, in the HCP.

[48] Numerous Mead Johnson advertisements such as *JAMA*, 1930, *95:* 22 and *J. Ped.*, 1933, *3:* 26.

[49] John Lovett Morse, "Progress in pediatrics," *N. Eng. J. Med.*, 1932, *206:* 685.

The medical profession recognized that not only could it promote better and safer infant nutrition through commercial infant foods, but that widespread promulgation of simpler methods of infant feeding also could draw clients away from the physician's practice.[51] In order to attract and hold their clientele, physicians attempted to control the distribution of information needed to use these products. Far-seeing infant-food companies, sensing the growing influence of the medical establishment in infant feeding, acquiesced. Manufacturers sold but medical practitioners controlled: a mutually advantageous relationship between physicians and infant-food companies had been established.

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[50] S.M.A. advertisement, *JAMA*, 1933, *101:* 12.

[51] Henry E. Stafford, "The changing pediatric practice," *J. Ped.*, 1936, *8:* 376.

TEXTS AND DOCUMENTS

SIR WILLIAM OSLER'S DREAMS AND NIGHTMARES*

Edited, Annotated, and Introduced by

CHARLES G. ROLAND

Most people are aware of at least some of their dreams and are curious as to their meaning and significance. Osler shared this interest, both personally and professionally.[1] In letters and notes to his friends he often mentioned his own dreams,[2] and in November 1910 he began to write down recollections of his dreams systematically, attempting to do so immediately upon awakening.

A man's dreams are, of course, invaluable to the student of his personality. Dreams are the "night side" of our lives in more ways than one. As Freud has taught, in sleep the mind's "censorship" relaxes and energetically repressed wishes—sexual and aggressive—come to the fore. Osler's dreams show us a different man from the one portrayed by Cushing. The great physician's dreams do not point him out as any worse than the rest of us or force us to revise in any way our high estimate of the man, but they do reveal that even the waking saint has his feet in the same clay as his brethren.

The devoted husband dreams of extramarital affairs (dreams 11, 15, 20, 21), for which the syphilitic aorta (dream 39) may have been punishment. The adored Lady Osler is ridiculed (dream 15) and depicted as jealous (dream 21). He lusts after a daughterly charge (dream 30). The honorable doctor behaves dishonorably toward a medical colleague (dream 9). The manly Celt assumes a feminine sexual role (receives snakes in his armpits), becomes pregnant, and gives milk (dream 27). The Christian moralist pokes fun at the institution of marriage (dream 45).

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* Edwin R. Wallace, M.D has read this paper in manuscript form and a number of his valuable suggestions have been incorporated in the introductory material with which this paper begins. His constructive criticism is much appreciated.

[1] For example, Osler (WO throughout these footnotes) described patients who had unusual types of night-terrors or nightmares. See *Montreal Med J.*, 1896, *24:* 778-780.

[2] All of the accounts of his dreams in Cushing's *Life*, the standard source, were written after 1910, when WO began to take a deeper interest in his own dreams. See Harvey Cushing, *The Life of Sir William Osler*, 2 vols. (Oxford: Clarendon Press, 1925), 2: 268, 291, 294, and 441. Because none of these dreams are contained in the manuscript notes Osler left, they are not included in this compilation.

But Osler's waking character was not entirely inaccessible to his dreams. The dream of the "bull's breath cure" (35) probably shows us Osler the trickster. He exhibits his customary medical inquisitiveness (dreams 4, 29) and love for books (dream 31). One dream (37) suggests that he wanted to substitute himself for his son at the front. This deeply human love for Revere and grief at his loss come forth poignantly in the dream of the blind angler (42), and it is plain that the sleeping Osler detested war as much as the waking one.

But only a very few and diffident words can be uttered about Osler from the texts of these dreams themselves. They can only be viewed in the context of the rest of his life. Thus, these dreams will be most meaningful to those knowledgeable in other aspects of Sir William's biography.

We do not know why he made this record. Cushing refers to it, commenting that the purpose or effect of Osler's study of his dreams is not apparent.[3] But given the times, we need feel no surprise at his interest. The medical literature of the early 20th century contained much on the subject. Freud had published his hypothesis on dream interpretation in 1900 and the literature of the following decade was replete with commentary. One article, that of Sir George Savage on normal and morbid dreams, is of particular interest.[4] A reprint is cited in the *Bibliotheca Osleriana* (thus indicating a strong likelihood that Osler had read the article), the author was a close and long-time friend of Osler, and there is a trivial coincidence that both the author and Osler dreamed of their own post mortem examination (see dream 39). Although I have no evidence to support my conjecture, one can readily conjure up a mental image of the two old friends sharing their mutual interest in dreams, and Savage perhaps urging his companion to keep a record.

Whatever his reasons for doing so, Osler did make notes on his dreams and nightmares. After his death these notes became part of a substantial body of unpublished manuscripts that has only recently begun to appear in print.[5] Permission for the annotation and publication of the material on dreams has been granted by the Board of Curators of the Osler Library.

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[3] *Ibid.*, 2: 269.

[4] See George H. Savage, "Dreams: normal and morbid," *St. Thomas's Hosp. Gaz.*, 1908, *18* 24-35 (*Bibl. Osl.* 3921).

[5] For the most substantial portions see Wilder Penfield, "Halsted of Johns Hopkins: the man and his problem as described in the secret records of William Osler", *JAMA*, 1969, *210*: 2214-2218; William Osler, "The inner history of the Johns Hopkins Hospital," edited, annotated, and introduced by

Dreams 1, 2, and 46 come from other manuscript material in the Osler Library and are included here for completeness. The bulk of the material, dreams 3 through 45, was recorded by Osler between 1910 and 1918. The notes were written in pencil, in Osler's hand, in a dummy volume of the second edition of *Aequanimitas,* probably a mock-up for his approval by the London publisher, H. K. Lewis.[6] The pages in the book were blank except for the printed title page. Each page is numbered in pencil. In the front of the book, Osler wrote some notes on clubs to which he belonged. He reversed the book and recorded his dreams on the blank pages beginning from the rear. Page 490 is blank; the manuscript begins on page 488 and, because Osler wrote only on the right-hand pages, only even-numbered pages were used. The final dream is recorded on page 430.

In preparing the text for publication I have corrected only those spelling errors that seemed likely to cause confusion for a reader; some punctuation has been added where its use seemed necessary and the author's intent unequivocal. Square brackets identify added material.

1.

Osler's pocket notebook, *Bibl. Osl.* 7665, iii, leaf 13.

Dreams: Night of Feb. 7th [18]85. After supper at Hays[7] 11 p.m. Croquette and 1 glass sherry. In bed with brother Frank.[8] Night mare fell out of bed the right side and went down down down. Very distressed and uneasy—so glad to wake up in my dream and find it was [a] night mare. Touching my brother's leg caused me apparently to wake up. Then I—not having wakened up thought my brother had the n[igh]t mare and rolled out of his side of the bed and I watched him, he looked as if he might be having a sort of fit, he squirmed about so. I got up, shook him and he came back to bed and we had a good laugh together over the night mare and then turned round to go to sleep again, when I in reality woke up and had a laugh over my dream.

Donald G. Bates and Edward H. Bensley, *Johns Hopkins Med. J* , 1969, *125:* 184-194; and "Sir William Osler's autobiographical notes," edited, annotated, and introduced by Edward H. Bensley and Donald G. Bates, *Bull. Hist. Med.*, 1976, *50:* 596-618.

[6] The book is octavo, blue cloth cover, cover dimensions 4-3/4" × 8-3/16" (*Bibl. Osl* 9680).

[7] Minis Hays, M.D. (1847-1925), Philadelphia physician and editor of *Medical News*, for which WO had been Montreal correspondent. Hays played a significant role in bringing WO to Philadelphia. See Cushing, *Life of Osler*, 1: 202 and passim.

[8] Francis (Frank) Llewellyn Osler (1847-1933), was the other twin with Charlotte (Chattie), WO's favorite sister. Frank was the black sheep, living a dislocated roving life. Like his younger brother, Frank lost his only son in World War I. See Ann Wilkinson, *Lions in the Way. A Discursive History of the Oslers* (Toronto: Macmillan, 1956), pp. 98 and passim.

2.

Osler's pocket notebook, *Bibl. Osl.* 7665, iii, leaf 12.

4/3/[18]89. Horrid nightmare—no supper! Thought there was someone on the bed holding the clothes over me. I struggled fearfully. With heart going at a fearful rate and as I thought perspiration standing out, I debated that the door was locked and that it was probably only [a] nightmare. Of this I am positive that I urged this upon myself and endeavored with all my might to break the spell and wake up but for several minutes—so it seemed—without avail. When I did wake up my heart was not beating violently nor was I sweating. The sensations which I had experienced at once brought to mind poor Clarence's dream.[9] The . . . [ends unfinished].

3.

Aequanimitas Manuscript. Dreams—Notes on my. 1910. [p. 488] Nov. 29. At Saratoga, N.Y. (which I visited only twice) outside a Livery stable, on the slope of a hill not far away from the G[ran]d Union Hotel. The men were putting in a horse to an ordinary buggy with hood. My Brother B.B. and his wife[10] were standing near. The horse was a new mechanical contrivance but made to resemble one in every respect. Eyes moved, tail frisked and it pawed the ground anxious to get off. The skin was most natural and moved and quivered to knock away the flies. Only on the right side showed a sort of steel plug about the size of a door knob and through this the new radium force was charged which gave life to the machine. The men had to hold its head while we got in. The[re] was a bundle of old loose music on one side of the seat and my sister-in-law said "put it beneath." When we started two men were at the horse's head and I had the loops attached to the reins around my wrists. B.B. and C. were very nervous. I was wedged between them on the seat, very excited as in some way the new horse was an invention of mine. It had a magnificent action and we flew down the road. The verandahs of the Hotels were crowded but I was mortified that the buggy was not in keeping with the horse or the occupants. We were speeding down the road in fine style when the horse suddenly bolted thro the gateway of a large private estate. We narrowly grazed the posts and then—I awoke!

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[9] See Shakespeare, *King Richard III*, 1, IV, l. 2-3: "O, I have pass'd a miserable night, so full of ugly sights, of ghastly dreams . . ."

[10] Britton Bath Osler (1893-1901), purportedly the most brilliant of all the brothers; distinguished lawyer and Queen's Counsel. Caroline Smith (d. 1895), Britton's first wife.

4.

[p. 486] Dec. 1st. I had sent a patient, Miss L.,[11] to Dr. Herz [sic][12] in whose X-ray work I had been interested. I called at his house hoping to meet her there by appointment as her mother had written worried at what had been discovered. Miss L. was not there but Dr. H. said, "I told her it would not be necessary as I arranged for reproduction plates." In his x-ray laboratory[13] was the usual screen and apparatus and a long table beneath which were all sorts of appliances and two huge Crooke's tubes. He turned a crank, put in a large photographic plate and behold on the table was a full size reproduction of Miss L.—flesh and bones and blood—only the spirit, the intelligence, was absent. The pulse beat, the chest moved, and on exposing the abdomen we could see the viscera very plainly. The stomach was distended, and I could feel the splashing etc. We discussed the case very fully, taking everything for granted as if it was an every day affair. One thing only seemed peculiar—just beyond the opening of the bile duct there was a chalk mark, a + on the duodenum which stood out with great clearness. I asked if it meant anything and Herz replied "no, not in a woman. I find all sorts of these secret markings, some in blue pencil, some in red, others in ink, very often in chalk. One of my students is making a research on them and believes they are connected with the secret societies which have become so common of late among women."[14]

5.

[p. 484] Dec. 2nd. Awoke with a sensation of having had a great many dreams. Went to sleep with a determination to dream of S.[15] but no recollection of having done so. Awoke with sensation of a very fresh dream:—In Baltimore walking down N. Howard St. passed the Franklin St. Corner to find that the next corner was Franklin St. New shops—new pavement—very hot afternoon. A man at door of shop called out to a friend "120° in sun, radiation on pavement 80—temperature tomorrow will be 2° higher—I have never known it fail." I strolled down Franklin St.—many nice new shops; the Eatons' house [was] still standing.[16] I walked on, and to my surprise found myself in Centre street near North Charles, 2 blocks away. I had nearly reached the corner when to my surprise I saw the chemist's shop of Hynson and Westcott[17] in the St. James Hotel. They were both at the door and welcomed me most warmly. Nice new shop—rather low ceiling. Great many tables in the middle with nick-nacks and instruments. Took up an Eau de Cologne sprinkler and incensed the tables for luck. Then began to pick up the instruments; many of which I recognized. There was [a] brutal looking compresser of steel with closed teeth. Mr H. said it was for breaking roots of teeth in the alveoli and then they are dug out with this chestnutwood scoop—and he handed me a curious shaped wooden instrument. There were all sorts of new teeth pullers—and H. remarked, "Great progress in dentistry here since you left." I then began twirling bottles and small articles on the tables and H. told a story of how I had twirled a plate of almonds at a dinner party so ingeniously that all of the almonds went into the soup plates and none on the floor. I remarked "More stories about Dr. Osler." I then went out with Hynson and strolled up N. Charles—great changes—new shops everywhere. The place they had left was now occupied by a beautiful new shop—like the rest rather low. I asked why they had left. "Could not pay the rent, they ask as much per annum per square foot as we used to pay for the whole place." The Unitarian church[18] had been pulled down and there were beautiful shops. My house was at the opposite corner but I never saw (in the dream) the sky scraper[19] which has been erected on it nor did we allude to the change in any way, but walked down Charles St.

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[11] [Cannot identify. Ed.]

[12] Arthur Hertz, later Sir Arthur Hurst (1879-1944). Hurst changed his name in 1916 (*DNB*, 1941-1950, p. 417) possibly because of the general reaction against things German during the war.

[13] Hurst was an early worker in the use of roentgenologic techniques to study the gastrointestinal tract In 1909, Hurst published a book describing his studies on the passage of food along the gastrointestinal tract, an endeavor in which he was encouraged by WO. See Arthur F. Hurst, *A Twentieth Century Physican* (Baltimore: Williams and Wilkins, 1949), p. 95

[14] The suffragette movement was challenging the British government vigorously at this time, so it is not surprising that the matter would be on WO's mind and in his dreams. Demonstrations and riots were occurring, and women were being arrested and, in some instances, force-fed in British jails.

[15] Perhaps Susan Revere Chapin, his wife's sister (see n. 83 below).

6.

[p. 482] Dec. 3rd. Great many dreams. Was acting as locum with another man in a factory town in the north—about 6 a.m. my comrade who was sleeping in same room wakened me by moving my head up and down and it made a noise like an old watchman's rattle. I heard it in my sleep, and knew he was doing it, and did not waken for a time, when I did I merely remarked "Some day you will shake those bones out." A woman came in with our breakfast—steaming hot, a big apple tart and an apple pudding! I went to the door and looked out on factory town scene—the work people in clogs hurrying [to] work in the dark sloppy streets. We were in a low brick house with wings and I could see the brass plate on the door with the name of the firm which employed us—suggested Dr.—'s place at Bolton.

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[16] Home of George N. Eaton and his three daughters, the last of whom died in the 1940s. The address was 119 West Franklin; the home was demolished in 1955. *Evening Sun* (Baltimore: July 19, 1955).

[17] Hynson and Westcott (Hynson, Westcott, and Dunning since 1930) was actually located immediately across Charles Street from WO's old home at 1 West Franklin. The displacement of the firm to Charles and Centre Streets took place only in the dream.

[18] Still standing (1976).

[19] What is a "sky scraper" is a relative matter. The six-story apartment building constructed at 1 West Franklin seems unremarkable in size now but may have looked large in 1906.

7.

[Same date]. N.Y. Sunday morning going to G[ran]d Central Station all sorts of big vans with great zinc and brass cauldrons and huge vats. Near the station a big freight shed with large placards—for Sunday use only.

8.

[Same date]. Odd dream—a house something like that of the Parkins[20] at Goring. A gentleman in brown velvet suit and knickerbockers, aged about 25, looking like an artist—an old friend of Grace,[21] who talked very much of his father and of Dave Yandell.[22] She said she had a little book upstairs which the father had given her—a vellum-bound book of verses. He said, I will run upstairs and get it. I met him on the stairs coming down and was rather surprised that he passed me without recognition. Going out on the lawn Grace said "Oh, you are your father[23] after all" and he said "Yes, I was only fooling you about being my son" and he had changed and looked an older man tho dressed the same. None of us seemed surprised—we took it for granted.

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[20] Sir George Robert Parkin (1846-1922) was first organizing secretary of the Rhodes Scholarship Trust. According to the *DNB*, his home at Goring-on-Thames became a meeting-place for Rhodes scholars and other visitors. Parkin was born and educated in Canada, he was a teacher, headmaster, and Imperialist before joining the Rhodes Trust in 1902.

[21] Osler's wife, Grace Linzee Revere Osler (1854-1928). She was first married to Samuel W. Gross, of Philadelphia, who died in 1889. Grace married WO in 1892. For the fullest account, see Arnold Muirhead, *Grace Revere Osler, A Brief Memoir* (Oxford: Oxford University Press, 1931).

[22] David Wendel Yandell (1826-1898) was a long-time friend of the Grosses, the family of Grace Osler's first husband. Yandell was a distinguished surgeon, a president of the American Medical Association, and editor and founder of the *American Practitioner*. See Howard A. Kelly and Walter L. Burrage, *American Medical Biographies* (Baltimore. Norman, Remington, 1920), pp. 1277-8.

[23] Lunsford Pitts Yandell (1805-1878) graduated M.D. from the University of Maryland in 1825. At various times in his career he was professor of chemistry, of materia medica, and of physiology; he served as editor of two journals and was an expert geologist (a number of fossils carry his name). *Ibid.*, pp. 1278-9.

9.

Dec. 4th. Just before wakening crazy dream about Prof. Ritchie[24] now of Edinburgh. We have been arranging for a new pathological Department at the [Radcliffe] Infirmary,[25] and a few weeks ago the question was settled. I dreamt that there were two meetings—one of the University people to whom Dreyer[26] (the present Pathologist) explained the situation, which was all very reasonable only he said that there was material enough to have a Saturday demonstration course as good as Virchow's at Berlin.[27] The other meeting was at a private house to settle a claim of Prof. Ritchie for £2000 for giving up the position of pathologist. There had been some discussion and this was the final meeting at which he was to be paid. Mrs. Horatio Symonds, H. Symonds,[28] Mrs. Osler, a couple of solicitors were present. I joked [p. 480] R. a good deal about his scotch cleverness in finding an old law which gave him this claim. I was to sign the cheque—but for some reason I could not give one on the L[ondon] & W[estminster] Bank but it was on some bank at which I would have £2-3000 on Monday the 9th. We had great difficulty in getting a piece of paper suitable for the cheque but at last Mrs Symonds found an old cheque form without the name of any bank but with all the writing in Russian—I said—"no matter, this is Oxford, they will understand." I filled [it] in—and when writing the 9 made an awful blot so that I had to write it on an upper level.

There was no psychical justification for such a dream. R[itchie] never gave any trouble.

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[24] James Ritchie (1864-1923) was Professor of Pathology at Oxford when WO took up his Regius Professorship there; indeed Ritchie's name was one of those mentioned for Osler's post. See Cushing, *Life of Osler*, 1: 626. In 1907, Ritchie accepted an invitation to return to Edinburgh; he was succeeded at Oxford by Dreyer (n. 26 below). See R. Muir, "James Ritchie," *J. Path. Bacter.*, 1923, *26:* 137-144, port.

[25] The new building was formally opened on Nov. 26, 1913. It combined facilities for outpatients, an x-ray department, an electrotherapy department, and the pathology department. See A. H. T. Robb-Smith, *A Short History of the Radcliffe Infirmary* (Oxford: Church Army Press, 1970), p. 131.

[26] Georges Dreyer (1873-1934) was appointed to the chair of pathology at Oxford in 1907 and remained there until his death.

[27] As early as 1876, WO, then early in his teaching career, was holding Saturday morning conferences overtly modelled on those he had attended in Berlin. See Cushing, *Life of Osler*, 1: 148.

[28] Horatio Symonds (1850-1923) was surgeon to the Radcliffe Infirmary from 1878 till 1915. See Robb-Smith, *Radcliffe Infirmary*, p. 101.

10.

Dec. 5. Four or five dreams—woke after three of them. Tried to dream of M. and the baby.[29] Passed thro a room—may have been a lying-in room but it looked like the shambles, blood everywhere and cow-dung! and yet it had marble floor etc. I went out thro a garden of a big place like a hospital and was shown the gate of a big field and told to peep in only—scores of cows with their calves—Marjorie was one of them!

11.

[Same date]. Awful dream of a brute of a man—big house, electric light—up all night trying to quiet a row between him and a huge woman his wife, a monstrous Jewess whom he was abusing and beating. The row was over her daughter whom he wished to make sleep in his room. One incessant brawl all night. In and out of my room the whole time. When daylight came I got them off to bed but the fat Jewess wished, for safety, to sleep in my room. She was a mass of bruises.

12.

[Same date]. At E.B.O.[30] different house—guests, came down to dinner in my shirt sleeves. Room at top of house—curious back stairs.

13.

[Same date]. F.C. Smith[31]—the politician—row with, over his abuse of a fellow lawyer. I was sliding down bank of a canal—very steep—but soft, when he and the friend came up in a motor boat having crossed the Atlantic to Canada—up the St. Lawrence and the lake to Dundas.[32] I chaffed him about lawyers and their abuse as he seemed such friends with the man. "It's dinner we want," he said.

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[29] Gwendolen Marjorie Howard (1882-1969) was the daughter of WO's mentor and friend, Robert Palmer Howard, of Montreal. Marjorie was born while WO was still at McGill and she became a particular favorite of his. In 1909 she married Thomas Barnes Futcher (1871-1938), WO's third Chief Resident. Their first child, Palmer Howard Futcher, was born Sept. 13, 1910—less than 3 months before WO recorded this dream.

[30] Sir Edmund Boyd Osler (1845-1924), WO's brother, was an important figure in Canadian business—head of one of the most important brokerage houses in the country, president of the Dominion Bank, a director of the Canadian Pacific Railway, member of the House of Commons. EBO was involved in the somewhat unusual financial affairs of the Canadian Pacific Railway. Frequently he provided WO with money for the purchase of books. See Cushing, *Life of Osler,* 1: 14, 124; 2: 453.

[31] Frederick Edwin Smith (1872-1930), first Earl of Birkenhead and Lord Chancellor of England (1919-1924).

[32] Dundas, Ontario, near Hamilton on Lake Ontario, was WO's home from 1857 (when he was 8) until he went away to school.

14.

[p. 478] [Dec.] 6th. No dream remembered. I went to sleep determined to dream of N.[33] Hazy recollection of a scene in church, nothing definite.

15.

[Dec.] 8th. All sorts of queer dreams—dim memory of. One just before waking very remarkable. A Mrs Swann, whom I saw in London several times is very ill—dying in fact. I dreamt she was living at Rome in the Vatican. Mrs Ladenburg was there and Mr Swann and Miss Stevens.[34] She had been in some way mixed up with the Pope, who was in and out of her room constantly. He looked a benign old man dressed in a long cassock. We had to go out every evening and Mrs S was left alone with the Pope and a couple of boys who nursed her. The rule was that no woman could stay the night in the Vatican. Mrs Ladenburg and I usually went out together and ran a race down a long passage which led to a side exit. All the doors had but one hinge, a huge one shaped like a key. The end I did not remember.

16.

[Dec.] 11th. Extraordinary dream about Mrs Osler. We were in a large hall or church with two galleries—I was in a pew at the back with Mrs Bullitt[35] and some other friends. A lady had just sung with a magic voice—we could not hear the music as it was out of range of ordinary ears, but we could hear the words which were most pathetic and nearly every one was crying. Next Grace appeared on the front gallery at the back, dressed in a cloak. She was to sing, but she said that she would tell a story instead and rambled on in a silly way telling about her life. Suddenly she threw off her cloak and appeared in tights and taking a short run sprang over the heads of the people in the gallery and landed in a netting in the centre aisle. Everyone was paralysed with fright as she squirmed and struggled in the net as tho she had a fit, but she got up with a smile and bowed and said she was fooling. She went out of the back door and I could see by the expression on her face that she was disappointed not to hear any applause. I hesitated whether I should begin when Mrs. B. started, but it was very feeble. The girl in the pew in front of us had her dress cut very low in front, almost to the ensiform cartilage, and showed the inner halves of large breasts on which were symmetrical birth marks of very peculiar pattern.

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[33] Perhaps his niece, Nona Gwyn (Mrs. C. Stuart), "plain but sweet" according to WO. See Cushing, *Life of Osler*, 2:218.

[34] [Cannot identify any of these names. Ed.]

[35] Louisa Bullitt (née Louisa Gross Horwitz, 1864-1919), was a niece of Samuel D. Gross, Lady O's first husband.

17.

[p. 476] [Dec.] 13th. Dreamt of Sir John Rhys,[36] Principal of Jesus[37]—great discussion with him upon Diabetes, which he has. He had found in the Bodleian two large volumes of Willis (of the Circle) who did write on the disease. Beautiful plates—folio, showing the relation of the disease to the great sympathetic system. Done in colors. Nerves beautifully drawn. Then some transaction with Jim Tyson[38] who brought a receipt for $87 I owed him. I said there was some additional items and gave him a cheque for 100, writing it on a bit of the green blotting paper of my pad. Of course the words were all blurred but he said it was valid.

18.

[Dec.] 16th. Full of dreams—half memories of which remain. One pretty distinct. In an old book shop—did not recognize which—one of the clerks said "Mr Quaritch[39] is upstairs and would like to see you." I found young Q. in a tumble down room filled with books. He had just married a middle aged stout woman—the bed was in the room, breakfast things on the table and everything in great confusion. He apologised, saying that he had brought his wife here on purpose as she must know the business. Then we went down stairs and he showed me a set of engravings of men of the 14th and 15th century who had the same type of features as my own. He said they were for a customer who was collecting moyen age faces to present to Mrs Osler as a Xmas present. Then Mr. Q. said something about a revolution I had effected at the Royal Society.

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[36] Sir John Rhys (1840-1915), was a Celtic scholar of the first rank. He was associated with Jesus College from 1877 until his death. He served on the hebdomadal council at Oxford from 1906 to 1911; as WO was a member at this time, they would have met regularly.

[37] Jesus College, Oxford.

[38] James Tyson (1841-1919), played a large role in bringing WO to Philadelphia from Montreal. Tyson succeeded WO in the chair of clinical medicine when, in 1889, WO moved on to Johns Hopkins. See Anon, "James Tyson, M.D., LL.D., our retiring president," *Penn. Med. J.*, 1912, *16:* 83-5.

[39] Bernard Quaritch (1819-1899), a German-born bookseller in London, became one of the leading dealers of the time.

19.

[Dec.] 22nd. A night of crazy dreams—2 sexual. (1) a strange weird scene with flood and snow and ice—a mountain to climb, plank bridge to cross, and a rising flood on the slope of a mountain. Wading thro it quite unconcerned in evening clothes. We had to pass thro two little huts—one [p. 474] was guarded by a good-natured dog, the other by a half grown bear. As I pass by the latter he caught me by [the] rump—clothes flesh and all, and his sharp teeth hurt terribly. I yelled "blue murder" but the others all laughed at me and told the bear to hold on.

20.

[Same date]. (2) Mother and daughter in my bed room, quarrelling like fishwives for the privilege of getting into my bed. I decided in favour of the old lady—on B. Franklin's principle. The daughter Mrs F.W.[40] went crying out of the room. I attended [to] the mother and had an anxious time.

21.

[Same date]. (3) In Paris or some large foreign city, mixed up with a curious looking young girl who would follow me about much to G's[41] disgust. She came one day at 10 and stayed till 5, leaving her droschky [carriage] at the door.

22.

[Dec.] 23rd. Many weird forgotten dreams. One in which we were in a big room settling an affair when a sudden knock came at the door, very sharp and clear. I called out "Come in" and woke with the echo of my voice in my ears and my heart beating rapidly. For a moment I waited expecting to hear the knock repeated.

23.

Jan. 9th [1911]. Many dreams during the past week—few vivid. Last night [a] curious mechanical one. G[rea]t theatre to which the carriages and motors drove up, and as in rapid succession the people got out the carriages dropped thro a trap door with extraordinary rapidity. At the exit they were all arranged in a subway and as the man called the numbers, by pressing a button at the door up came the motor thro a trap door and was off in a moment. Odd that any such idea could have come into my head.

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[40] [Cannot identify. Ed.]

[41] Grace Revere Osler.

24.

[p. 472] Jan. 16th. All sorts of wild dreams. A great steel open trough leading from a terrace like Mrs. Carl's[42] with a house. A fine avenue of trees was near the trough and was filled with a waiting crowd—as one of them said for the machine to work. From the side of the trough the whole distance 150-200 feet came fine steel knives with razor edges—but shaped like the labyrinth of Crete (a model of which I had seen at Evans[43] yesterday). They worked patiently in the trough and cut to mincemeat anything that was put in the feeders above. They had just put in Mark Twain[44] whose white hat could be seen on the parapet. The people were waiting to see Kermit Roosevelt[45] put in. In a huge pen pigs [Just above the word "pigs" Osler wrote "James"—perhaps doodling the name "James Bovell," as he so often did when his attention was distracted[46]] anxiously waited for their next meal of mincemeat. A weird dream but no one seemed astonished.

3 other dreams. Bob Stevenson[47] and others in a big car—a visit to Gotch's[48] Laboratory with some friends—the men were doing sketches

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[42] [Cannot identify. Ed.]

[43] Sir Arthur Evans (1851-1941), the excavator of the ruins of Knossos, in Crete, from which he derived evidence of the existence of the Minoan civilization. The labyrinth was a part of these ruins. Evans was curator of the Ashmolean Museum at Oxford (1884-1908) and professor of prehistoric archeology from 1909. He was knighted in 1911, the same year as was WO.

[44] Mark Twain (1835-1910), had died just a few months before this dream. WO knew Twain and had helped entertain him during his trip to Oxford in 1907. A copy of Twain's *Christian Science* was in WO's library.

[45] I have not been able to trace any direct relationship between WO and Kermit Roosevelt (1889-1943).

[46] See Cushing, *Life of Osler*, 1: 57.

[47] Perhaps Robert Louis Stevenson (1850-1894)? WO had read many of Stevenson's writings, and their interests crossed directly when Osler was in Baltimore and seeking to educate the public about tuberculosis; it was Stevenson who did much to publicize Trudeau's work. See Cushing, *Life of Osler*, 1: 628.

[48] Francis Gotch (1853-1913), was Waynflete Professor of Physiology at Oxford from 1895 until his death. F. G. Hobson, who married the eldest daughter of Professor Gotch, wrote: "On several occasions during these years I met Sir William as an intimate friend of my wife's family, to whom we turned for advice on personal matters and as a doctor." See F. G. Hobson, "Sir William Osler," in Kenneth Dewhurst, ed., *Oxford Medicine* (Oxford: Sandford Publications, 1970), p. 88.

etc—an examination, and a visit to a friend of Shepherd's[49] with Crozier[50] and Mills.[51] Shepherd pretended to be drunk—a lecture.

25.

[Jan.] 17th [1911]. Many dreams. (1) an address of welcome to some society meeting in Oxford. All had assembled. I was late—not in Sheldonian.[52] I spoke of the charm of Oxford etc. End with a hope that each one of them would before leaving say a little prayer beneath the picture of Bodley[53] for some of the wisdom of the ancients—contained in these books. (2) Bad dream about Musser[54] who was personally conducting a big party thro Oxford—some trouble about not coming home. (3) Just outside Ch Ch[55] a society lady's toy dog "stuck" to a bitch about six times his size.[56] Lady frantic. I helped her to get the dogs into a house near by.

26.

[p. 470] [Jan.] 21st. Very crazy dream. In the Park on the other side of the Cherwell[57]—Grace and several people with me. Our attention was called to several huge birds flying towards us and many rooks after them making a great noise. One huge bird, a monster eagle, was in great distress as a big rook was mounted on his head and kept pecking at his eyes. He flew up and down and made great dives and moved his wings in an extraordinary manner. Everyone was so excited and we thought the bird would fall but he flew on and alighted on the top of our house, which appeared to have a turret and a small gallery. When we came into the garden (which was much larger than ours really is) we could see the huge bird like an eagle only twice the height, standing in the gallery and the eyes looked grey and there was blood on the beak. Grace said she would go up but he disappeared and in a minute down the steps came a huge brown bear. Revere[58] was terrified but he seemed very playful and came jumping over and smelt me and said "You are all right." In a moment he had changed to a dark Hebrew in a light tweed suit with a curl on his forehead, and he turned with a smile and said "Am I not like Disraeli? How you were all fooled. That was my new aeroplane, shaped like an eagle. I was inside." He made no explanation of the bear; we were all greatly pleased and he told us they had flown from London and were really much troubled by the rooks.

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[49] Francis J. Shepherd (1851-1929), was graduated from McGill in 1873, one year after WO, who became one of his closest friends. Shepherd, a surgeon, played a role in introducing Listerism to Canada. He practiced in Montreal throughout his career.

[50] J. Beattie Crozier (1847-1921), began his medical studies at Toronto the year that WO left for McGill. Although Crozier's career ultimately was in literature, not medicine, it was typical of WO that they continued to meet and to maintain a warm friendship up to the time of WO's death. See J. Beattie Crozier, "Some personal reminiscences of Sir William Osler," in *Contributions to Medical and Biological Research*, 2 vols. (New York: Paul B. Hoeber, 1919), 1: 38-39.

[51] T. Wesley Mills (1847-1915), first met WO in Toronto, under the aegis of James Bovell. WO ultimately taught Mills at McGill (Mills having taken some years to teach school and save money), after which Mills served as demonstrator in physiology, working with WO. Mills became professor of physiology in 1886. According to WO he had "a curious lack of capacity for happiness." W. O[sler], "Professor Wesley Mills, obit." *Canad. Med. Assoc. J.*, 1915, *5:* 338-341.

[52] The Sheldonian Theatre at Oxford.

[53] Sir Thomas Bodley (1545-1613), who restored a library established in the 14th century but grown decrepit; the reborn library was opened in 1602. WO was a curator during his years at Oxford and was a staunch supporter and promoter of the Bodleian.

[54] John Herr Musser (1856-1912) succeeded WO as professor of clinical medicine at the University of Pennsylvania. Musser, along with WO and others, was a founder and financial backer of the *Philadelphia Medical Journal.*

[55] Christ Church, Oxford University.

[56] This account recalls the infamous vaginismus letter published by "Egerton Y. Davis" (WO) in which the author described most graphically a coachman and a maid similarly "stuck" and able to be separated only after the woman was anesthetized with chloroform, which "relaxed the spasm, and relieved the captive penis." Characteristically, the letter closes with a Biblical allusion. See E.Y Davis, "Vaginismus," *Med. News*, 1884, *45.* 673.

[57] The Cherwell (often contracted to Cher) is a stream at Oxford.

27.

[p. 468] July 23rd/[19]11. Interesting dream—repeated in same night. I was in a kind of Institute for treatment which had been organised by Sir Almroth Wright,[59] who had the appearance of (and was) Horsley[60] and Risien Russell[61] was his assistant. I was in a big room which opened on a logia [sic] descending to a garden. There was a big double bed. Grace was with me. I woke in the night with a sensation of something moving in my armpit. At first I thought it was a dream but gradually realized from the movements that a snake had crawled up my arm and had coiled itself in my armpit. I was simply terrified and went into a sort of convulsion—trembling violently yet saying all the time to myself "You must not stir or it may bite you." In a few minutes, it seemed hours, the beast uncoiled itself and slipped out of my arm sleeve. I heard it drop on to the floor and immediately put out my hand and turned on the electric light. Grace was not in bed. I got up bathed in sweat and went to the logia, where on a sofa covered with a blanket and leaves Grace was asleep. We roused the attendant, an old woman, who looked like E.W.B.N.'s[62] servant. She sent for Russell who came in very cheery and said it was all right and [that he] would telegraph to Horsley. Meanwhile the attendant began to worry me about some charges which a patient of mine had refused to pay, 12 guineas for each treatment. He was insane and I told her the executors would settle. In a short time a messenger came in with a big yellow envelope, the return answer from Horsley. "Send for Wassermann Bro[63] who will remove all snakes" and with this was a new coloured photographic impression[64] of what they had been doing that day. He was touring in Germany with his staff of vaccine physicians, the chief of which was a Russian Grand Duke. They were in four rows, five or six in [p. 466] each row—all with ringlets and looking very Jewish. They were all the top [sic] with earrings, etc.—all in colour, and this had been printed off and came as a sort of souvenir with the telegraphic message which was below and typewritten. Russell said it was all right and they would send in the morning for the firm. He reassured me and said the old woman would keep watch. He was very cheery and said the snakes in any case were harmless. I went to bed again leaving the old woman sitting by the window. Again I woke in an agony, feeling the snake crawling up my left sleeve and squirming about to make itself comfortable. It was a bigger one and in the dim light I could see the tail crossing the back of my hand obliquely. I was in terror and again had a sort of convulsion. My mouth was dry and I could not speak, but I could just see the shadow of the old woman with her head on the window sill. It seemed hours and the beast had evidently coiled in my armpit and his head was on my breast. Then it uncoiled and slipped away. By this time it was light and I saw its yellow body glide along the bed and down the post. I sat up and saw it run down a hole which led under the logia. I shouted to the old woman and Grace came. I fell back in a sort of faint and when I came to Russell was there again. He was awfully kind and said he would arrange other rooms but he felt sure the treatment was necessary and would be effective. I had only had one injection. He said "I had better reexamine you and see if the snake has bitten you." I saw a disturbed [p. 464] look on his face as he said "Have you always had these large breasts Osler?" "No," I said, "I felt there was something curious." "My God," he said, "there's milk in them. He has given you the wrong injection." He put his hand on my abdomen, which for the first time I noticed to be very big, and said "We are ruined. You are in the family way, that injection should have been given to Mrs Edgecumbe. Now I understand why you have been bothered with the snakes—they smelt the milk in your breasts and will do anything for a drink." And he sat down very much upset, having turned pale.[65] "Send for the messenger boy" and he wrote a long message to Horsley who was touring (as Wright) in Germany with the Grand Duke—"Stop all injection, vaccines are mixed, Osler pregnant" and the boy pulled out a little apparatus, touched a button, and took a photograph of us all which would be sent with the message. I protested that I was rather old to have a baby—but it did not seem strange on account of my sex, and Grace seemed quite pleased. "Now you will have a girl of your own." "I'll have a Caesarian done," I said.

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[58] Edward Revere Osler (1895-1917), the Osler's second child and the only one to survive infancy. See n. 94.

[59] Sir Almroth Edward Wright (1861-1947), was a distinguished bacteriologist and one of the founders of modern immunology. Late in the 19th century he worked directly with Horsley (n. 60), who was investigating the central nervous system histologically. See Leonard Colebrook: "Wright, Sir A.," *DNB*, 1941-1950, pp. 976-978; also Leonard Colebrook, *Almroth Wright, Provocative Doctor and Thinker* (London: William Heinemann, 1954), p. 14.

[60] Sir Victor Alexander Haden Horsley (1857-1916), achieved a remarkable career in both physiology and surgery. WO apparently first visited him in 1885, when Horsley was at the Brown Institute experimenting on myxedema in monkeys. WO's last writing for publication was a sympathetic review of Paget's *Life of Horsley*. See Paget, "Horsley, V.", in *DNB*, 1912-1921, pp. 270-271; also Cushing, *Life of Osler*, 1: 247; 2: 677.

[61] James Samuel Risien Russell (1863-1939), was a neurologist long associated with the Queens Square Hospital for Nervous Diseases. "Obit," *Brit. Med. J.*, 1939, *1*: 645.

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[62] Edward Williams Byron Nicholson (1849-1912), was the EWBN referred to. He was Bodley's librarian from 1882 until his death, and thus would have had much congress with WO. See *DNB*, 1912-1921, pp. 406-7.

[63] The hemolytic diagnostic test that bears the name of August von Wassermann (1866-1925) was discovered and reported to the scientific world in 1906. WO had a major interest in syphilis; in the 7th edition of his *The Principles and Practice of Medicine*, published in 1911, WO wrote that "Wassermann's reaction has reached the clinical stage, and in good hands may be accepted as a valuable aid in diagnosis" (p. 278).

[64] WO may have had in mind the commercial introduction, in 1907, of color screen plates based on the additive principle of color reproduction first enunciated by James Clerk Maxwell in 1859. See *Ency. Brit.*, 1975, 14: 329.

28.

Oct. 1st. All sorts of crazy dreams in the past 2 months—rarely have remembered one completely.

29.

[p. 462] Oct. 2nd. Curious the silly little minutiae in dreams. 7:15, I have just wakened. Have been at a consultation in London, 2nd time and the same place. [The] D[octo]r [was] a square faced man with cut-round beard, i.e. upper and lower lip and part of chin free, very nice people and nice house. Great deal of talk—then Dr. said "Sorry, I have a midwifery case and I must hand you over to my partner," a tall fellow with a limp, who had been in the room but I mistook him for a relative. We put on our hats but only went into another room across the hall, into which in a few minutes the patient came—a very thin girl, a consumptive. She lay on the sofa. I took her hand, which was very large, nails not curved. She had a spit cup and a handkerchief, and as she coughed I could see a small goitre rising up and down. I stayed a little while asking her symptoms and then said "We must go, I will wash my hands, nurse." A tiny little basin, 2 bits of soap one a thin narrow fragment, wh[ich] I took. It slipped from my hand and fell under the table. I would get it, saying "It might be wasted." Then Mrs ? the mother called out for a towel wh[ich] the nurse brought, and Mrs ? took it saying "I always keep my towels in antiseptic gauze," and she unrolled it from an embroidered cloth with holes as big as marbles. The Dr. and I went out to see our patient—*she was* on *the* sofa *in the room* and I *had been talking to her.*

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[65] As W. W. Francis remarked in a note on this dream, the sight of Russell turning pale would have been memorable because he was a West Indian of very dark complexion.

30.

[p. 460] 16 Nov. Very rare to dream correctly of future events. I saw [the] Pres[ident] of Magdalen[66] in dream and apologised that I could not come to his Poetry lecture as I had three meetings in succession, the last at the Delegates [of the Oxford Press] room at the very hour. Curious details: 2 fancy dogs on the pavement, one with neck tied with blue ribbon. I have had extraordinary dreams the past month but singularly unsuccessful in remembering. Some of shocking improbability yet I was not in the least surprised. M.'s[67] husband was her father P.H.[68] who was just going off on a trip. He had the same relation to me as of old. We saw him in the cab and went back to the house, when M. began to make love to me in a most improper manner.

31.

iv. 25. [19]14. On the 23rd Quaritch bought for me a MS of Sir Thos.

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[66] Sir Herbert Warren, (1853-1930).

[67] See n. 29.

[68] See n. 30.

Browne[69] for £20 (with E.B.'s money).[70] I was greatly interested as Browne MSS are very rare. It came yesterday, and last eve[ning] I was showing it to Revere. I dreamt that I was at the sale which was in a big room in a private house—beautifully furnished, and all the documents were put out on different tables to which the auctioneer went in turn. He had come to a long table at which only 5 or 6 persons were seated, I among them and young Quaritch. Mr. H.[71] the auctioneer took his seat at the head and said "Not much of interest here except that Browne MS. You will want that, of course, Professor." I had it in my hand. It was beautifully bound in old pig-skin and inside had a number of printed slips, descriptive—just as the original one has. Mr H. said "How much offered?" I said "£1." "All right" he said, "that seems all right [p. 458]. Nothing else offered—going, going—" Just at this moment young Quaritch, who had been at the other side of the table started up. "Wait a minute, wait a minute, I must bid on this for a customer" and he came round to my side of the table greatly excited with his hands thro his hair, picked up the MS—"£2" he said. Then began a lively contest between us. Three ladies at the table were very interested. Up, up went the price. £40, 50, 60, and at £64 it was knocked down to Quaritch. I was very disappointed, and evidently showed it. One of the ladies came over and patted my hand and said it would be all right. When I got to the club in the evening I found a note from Mr. Quaritch saying he had bought the MS for me, but it had gone up beyond his expectations as there was a gentleman very keen for it. All the time I was bidding against my own order to Quaritch.[72]

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[69] *Bibliotheca Osleriana*, #4416; iii; purchased at Sotheby's on April 23, 1914.

[70] Sir Edmund Boyd Osler (1845-1924), prominent Canadian financier, was the fourth son in the Osler family. In December, 1914, WO mentioned in a letter that "my bountiful brother EB sends an occasional fat cheque to meet my extravagances, as he knows my medical and scientific books are being collected for Canada." See Cushing, *Life of Osler*, 2: 453.

[71] Mr. Tom Hodge, the auctioneer at Sotheby's at this time.

[72] The irony is that this very thing actually happened to WO 15 months later. In the *Bibliotheca Osleriana*, #352, appears the following notation: "The following note has been inserted by Sir W. Osler at the end of the Bywater catalogue (#6952), which contains also a letter from Professor Bywater on this set: A tragedy happened with this set when sold at Hodgson's, 14 July, 1915. I really did not want it as we have a good copy at McGill, but I thought if it went at a reasonable price one of the libraries in which I am interested would be pleased; so I told Quaritch to use his judgment and bid to £10 or 12. A few days before the sale I saw the set which, as B says in the letter opposite, is an unusually fine one; so I dictated a letter as I thought to Quaritch saying not to miss it as it was worth more than £12. The letter was sent by my secretary to the auctioneer, Hodgson, so that I had the pleasure of bidding against myself and running the price up to a record of £29!! I shall keep the set as I hope the College will pass on their copy to the Toronto Library. [WO]"

32.

Aug. 9th 1914. As showing how little stirring events of the day may influence dreams I may mention that war was declared 10 days ago. Until last night I had no dream associated in any way with the soldiers or with the arrangement of the Hospitals. Last night a confused dream about the hospital at the Schools.[73]

33.

[p. 456] Aug. 26/14. Beatrice Francis[74] came in great excitement "I've got him—come, hurry up, he's very ill, but quite safe." She did not look quite like Bea—sharper features and a gap between the upper teeth, but it was Bea all the same. We hurried thro the streets of a town I did not know,—looked like N.Y. about Madison and 32nd St., a big RR on one side. We entered an hotel went directly to the lift, and were shown into a beautifully furnished bed room. Everything Parisian. And on a big bed was an oblong bale, carefully roped, the outer covering a thick quilt, so that the ropes sank deep and were not visible. Bea hurriedly took off her hat and cloak, called a nurse from the next room and they began to undo the bale. Bea muttering "He's safe all right, we've got him." I helped them with the ropes, which were very tightly drawn. I was filled with curiosity, and kept saying "What have you got here, Bea?" First the quilt, then blankets, at least half a dozen, two or three sheets, and then out rolled a great big burly brute, dead drunk and fast asleep. "There he is" Bea said—"now you cure him." "For heaven's sake" I said, "why did you wrap him up in that way?" I said. "That is our treatment," she replied, "we have done it every day for a week, but he is not better—so we thought we would call you." At this moment the unshorn horrid-looking face began to jerk, opened the eyes, the body straightened and gave a spasm—and died. I woke up.

34.

[p. 454] Sept. 1st. I was talking with Barlow[75] and a couple of men, and B was saying how splendidly I have got the better of the Chinese Govt. in compelling everyone to be vaccinated against the hook-worm disease. I did not know anything about it! and was much mystified. Barlow was Barlow, and talked like B. but he had the face of Brunton.[76] We were joined by Hale White,[77] Rolleston,[78] Herringham[79] and others and were sitting round a table. Suddenly I began to bring up great masses of black jelly-like material, which I spat out on to the table. No one seemed disturbed least of all myself. They were inky black and I said—my stylo[80] could not have held it all. Hale White remarked "Of course, Osler, it's blood. We did not hear you cough, it must have come from the stomach." But I protested I had not felt it come up and that it was too black and that it was ink of some sort. At this Hale White cut a thin slice and held it up to the light and one could see the red through. Barlow said "Do not worry, Osler. I am full of these ulcers myself and often cough up clots like those. It will do you good, you are looking better already."

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[73] The base hospital that WO helped organize, located in the university building called the Examination Schools.

[74] Beatrice Francis (1881-1965), was William Willoughby Francis's younger sister; WWF was Osler Librarian at McGill from the opening of the library until his death in 1959.

[75] Sir Thomas Barlow (1845-1945), University College Hospital, London, was associated with WO in many medical organizational activities. See G.H. Brown (compiler), *Lives of the Fellows of the Royal College of Physicians of London, 1826-1925* (London: Royal College of Physicians, 1955), pp. 270-271.

35.

[p. 452] Sept. 14th/[19]14. A huge plain in a valley beautifully situated, a river, and trees and lovely turf. Scattered on the grass in thousands were big bulls, of all breeds, all lying down and at the head of each one a patient breathing the exhaled air from its nostrils. This had been found to be a panacea—consumption, cancer, everything. It had to be bulls' breath, because it was so much stronger. Sometimes there were two patients at one bull's head. The animals were trained. At the heads of many the patients were only using one nostril, at the other a valvular machine was attached for collecting the air in reservoirs so that none of it was lost. This was sold in cylinders. An hour three times a day was the duration. I strolled about among the patients many of whom I knew. All were doing well. It was a great cure!

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[76] Sir Thomas Lauder Brunton (1844-1916), was an old friend of WO and a distinguished clinician at St. Bartholomew's Hospital. In 1888, Brunton was seriously considered by Billings as a candidate for the chair in medicine at Johns Hopkins that ultimately went to Osler. See Cushing, *Life of Osler,* 1: 297n.

[77] Sir William Hale-White (1857-1949), was a student and physician at Guy's Hospital throughout his career; he was associated with WO in many ways, including the founding of the Association of Physicians of Great Britain and Ireland (and of the *Quarterly Journal of Medicine*) in 1907.

[78] Sir Humphrey Rolleston (1862-1944), trained at St. Bartholomew's and at Cambridge. Rolleston and WO were frequently involved in mutually interesting endeavors, clinical, organizational, and historical

[79] Sir Wilmot Parker Herringham (1855-1936), was offered the chair of Regius Professor at Oxford after WO's death, but declined. It was at Herringham's home that the meeting was held which resulted in the formation of the Association of Physicians of Great Britain and Ireland.

[80] WO called his pen a stylo (from "stylographic").

36.

[p. 450] Sept. 27th/[19]14. One constant succession of dreams and all weird. Dr Fussell[81] brought his wife to see me, helping her to walk to the sofa. "Oh," she said, "Dr Osler, I have such a pain in my back." Looking at it there was from occiput to coccyx an incision the edges in beautiful apposition. F. said "She has had for years persistent pain in the back and I have done my new operation for it. I take out each dorsal spine and attached part of the bone, so that I can massage the cord gently in its whole length." With this he pulled a buried suture out which opened the whole incision. He then began to pick out the spines and laid them on the table in order, saying "They must go back in the proper places." When he had the cord exposed the dura was opened in the same way and he gently massaged the cord. She seemed very unhappy about it. In a few minutes he had put all the bits back, stitched her up, and we could not but admire the neatness of the job. I said "J. William White of Denver[82] could not have done it better."

37.

[p. 448] Oct. 12 [19]16. Does the same part of the brain work awake and asleep? Can we think of two things simultaneously? Revere had just come in 2.30 a.m. from Newcastle for his last leave before going to France so that I was thoroughly awakened. When he went upstairs I tried to get off to sleep again but it took a long time. *At one moment* I was thinking of this submarine off the US coast—and what would happen to the poor devils if their supply boat was sunk and their petrol gone, and wondering if any boat would attend to their signals of distress. *At the same time* in this drowsy stage I was at a camp in France, an attendant in a kitchen where meals were being served, and had a big flat dish of rice and custard. I had nearly helped it all when a man came with a plate and I scraped all the edge with the black surface of the custard and apologised to the man for giving so much of it, but he said—"That is what I like, I waited on purpose for it." The two incidents were in my mind at the same time, of this I am reasonably certain, and as I caught this impression of something unusual I bestirred myself and put in the fixating mixture to have a permanent impression.

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[81] Milton Howard Fussell (1855-1921), was a professor of applied therapeutics at the University of Pennsylvania, from which school he graduated M.D. in 1884, the year WO moved there from McGill. See Kelly and Burrage, *Medical Biographies*, pp. 443-4.

[82] J. William White (1850-1918), was a vigorous and brilliant surgeon from Philadelphia who was a colleague and friend since at least 1888. The reference to Denver can only be a slip. White was born, educated, practiced, and died a Philadelphian.

38.

[p. 446] Dec. 8th [19]16. Walking over a wide stone bridge which spanned the most wonderful water-gardens—acres covered by the sea with every possible variety of sea plants and arrangements for zoophytes and fish. Everywhere people were walking about on paths about 2 ft below the surface of the sea, and they wore waders for the purpose. We were looking over the parapet admiring the clear water, the sea weed, the polyzoa and the fish. Suddenly we heard a shout and about 200 yards away on one of the submarine walks a lady was shrieking and waving her hands and trying to escape from a big fish which was attacking her. We could see him biting her legs thro the waders and then he would stand on his tail and bite her face and hands and arms. The snapping of his jaws when he missed her could be heard. To our horror we saw that it was Grace (my wife). Near by were stone steps leading to the water. We—Sue,[83] Revere and I—rushed down—did not wait for the attendant—who offered us waders, but we plunged into the water, which scarcely reached our knees. A railing on either side indicated the position of the pathways and we could see that the water outside was in places quite deep. The fish had attacked her at the junction of two of these submarine walks. He had ceased the attacks and we could see people carrying Grace up stone steps. There was a great crowd, and it was difficult to move rapidly in the water [p. 444]. We followed the people to a big hotel just overlooking the water. Everybody was excited and talking. I forgot to say that as we crossed the place where she had been attacked men were looking into the water and pointing out the fish, and sure enough, there he was, a huge pike, fully six feet in length. Revere said at once "That is the King of the Jacks. He is mentioned by Walton[84] and is only seen once in 100 years. It is a very bad omen." They had taken Grace upstairs to a large room where she lay on a bed unconscious. Some women were taking off her clothes and a doctor was trying to make her swallow some brandy. Her face and arms and front of the body and her legs above the water level were thickly covered with bluish red points, from all of which blood was oozing. They corresponded to the punctures made by the teeth of the pike. Her face was a fearful sight as the teeth marks were everywhere. People were streaming in to look at her. When I told the Doctor she was my wife he paid no attention. He gave orders to the Manager who was standing at the foot of the bed to get a very hot bath ready. She just began to move and open her eyes when Bateman[85] came and wakened me with the noise of the blinds.

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[83] Susan (Revere) Chapin (1865-1961), Lady Osler's sister.

[84] Izaak Walton's *The Compleat Angler*, (1653), helped create Revere's love of books—which love brought great joy to his father.

I never saw a more beautiful sight than this large sea garden, and the walks were arranged so remarkably.

39.

[p. 442] 14. x. [19]17. 4:30 a.m. My own Post-Mortem. Extraordinary dream. I went with my brother Regius of Cambridge Sir Clifford Allbutt,[86] and Dr. A. G. Gibson[87] upstairs to the new p.[ost] m.[ortem] room at the Radcliffe Infirmary.[88] A body was on the table covered with a sheet, which was removed by the man and there I saw myself laid out. Gibson came up and said to me quietly "You had better not wait as it may embarrass Allbutt." I replied "Not a bit. I do not mind. I must see of what he died. Had he had many attacks?" "No," Gibson said, "only one or two and he died suddenly last night in a severe angina attack." "That is right Gibson, always say angina before Allbutt—he and Welch[89] are the only men to whom I use the short i."[90] Gibson proceeded with the post-mortem, and Allbutt discussed with me several points about my own case and I told him that years ago I often had substernal distress which I regarded as the initial step in the disease. By this time Gibson had the heart and aorta out. "Remarkably healthy-looking organ for a man of his age," said A., "and look at the aorta, as smooth as a child's, and the valves quite clear." "But," said Gibson, "see the root of the aorta," and in the sinuses of Valsalva and whole aortic ring the vessel looking like a bit of brown shoe leather, dry and hard. [p. 440] "Ah," said Allbutt, "that just fits my view, only the orifices of the coronaries and the first half inch of the aorta are involved. I never saw a more beautiful specimen—syphilitic, of course." "Well," I said, "Allbutt, it may be and it certainly looks it, but I know I have never had any symptoms of the disease. I may have had it innocently as a student." "The spirochetes will be there," said Gibson. Everything [sic, Every?] other part was normal, only an extraordinary arrangement of the branches of the pulmonary arteries which twisted several times about the main divisions of the bronchi. The intima was very white and smooth. The lungs were coal black, at which I remarked I was not surprised, as I had inhaled cigarette smoke since 1874.[91] I watched Gibson sew me up and jokingly said "I could have made a better job of that once upon a time." I saw Allbutt and Gibson talking quietly together, and the former came up and said "You do not mind, Osler, if I report the case—it can do you no harm as you are really dead. This appearance of yours is very unusual and quite difficult to explain," and then he buttonholed me and whispered "For God's sake do not go to your own funeral. It would [p. 438] upset your wife terribly. Come back to Cambridge with me." I woke up just as we were going into the histological room to see the sections of the aorta.

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[85] The Osler's parlourmaid [manuscript note by W. W. Francis, undated].

[86] Sir Thomas Clifford Allbutt (1836-1925), was an old friend and colleague of WO. They first met in 1878. See Cushing, *Life of Osler*, 1: 169. Allbutt became Regius Professor of Physic at Cambridge in 1892, thus permitting WO the delight, after attaining his own Regius Professorship at Oxford, of referring to himself and Allbutt as "the brothers Regii."

[87] Alexander G. Gibson (1875-1950), graduated from St. Thomas's Hospital in 1904 and began to practice in Oxford, where he soon was drawn into pathology as well; and through pathology, he came as a matter of course to know Osler. Ultimately, Gibson became both physician and pathologist to the Radcliffe Infirmary. He was, moreover, WO's physician and attended him devotedly in his last illness at the end of which he performed the autopsy.

[88] The Radcliffe Infirmary opened a new building in 1913. When WO, in his dream, mentions going upstairs to the new post mortem room, it was to this building that he referred. "Integrated within the building, although completely isolated from the outpatient section, was a mortuary chapel and mortuary with a separate lift which led up to the post mortem room on the top floor." See Robb-Smith, *Radcliffe Infirmary*, p. 132.

[89] William Henry Welch (1850-1934), was chiefly responsible for bringing WO from Philadelphia to Johns Hopkins in 1889. It seems entirely appropriate that WO should dream of his good friend, a great pathologist, in this particular context.

[90] WO's friend of Montreal days, A. D. Blackader, also used the short "i". See H. Ernest Macdermot, *One Hundred Years of Medicine in Canada* (Toronto: McClelland and Stewart, 1967), p. 165.

40.

21. xi. [19]17. My wife and I had just left the gate at no. 13 when a few yards down the street was a little man carrying a fishing rod of extraordinary length—fully 200 feet yet he carried it quite naturally. He looked like a little Hebrew but we had never seen him before. He carried a bait can and passed us without looking up. The rod was most extraordinary, not larger at the base than an ordinary one and with a reel, but it seemed to reach far up in the sky, tapering to a fine invisible point. We turned to

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[91] It is difficult to know how much reliance to place on statements made in dreams. The question of WO's smoking habits has come up recently in connection with a rumor that he had died of pulmonary carcinoma. Robb-Smith has no difficulty in disposing of the rumor, but makes the statement that WO rarely smoked—certainly a direct contradiction of WO's statement here. See A. H. T. Robb-Smith, "Did Sir William Osler have carcinoma of the lung?" *Chest*, 1974, *66*: 712-716; 1975, *67*. 82-87.

look, and as he passed the Griffiths[92] he paused, turned back, entered the gate, and laid the rod against the side of the house, thro which it fell with a crash, splitting the house in two and falling on the trees in the park which were broken and splinters flew about. The rod had fallen thro the bathroom, as steam began to pour out. The butt of the rod had been tilted over the fence and the little man rushed out and began to wind up the reel, bracing himself with one knee on the wall. I remarked "I hope the Griffiths were not at home, we must call on our way back."

41.

[p. 436] 26. xi. [19]17. Nightmare [of Lady Osler's][93] On falling asleep. 10:50. My wife had gone into her room and I had not noticed that she had gone to bed. Not more than a minute or two had passed when I heard a series of 'ouow, ouow, ouow' calls. I said what is the matter but got no reply. The noise continued, like someone in distress. I went into the room, turned on the light and found her asleep, breathing shortly and calling us above. I wakened her by shaking and at first she was quite dazed, and then said "What is the matter? I have been asleep. I must have had a night-mare. It was something about Lloyd George." Certainly not more than two minutes passed between the time she left my room and the beginning of the nightmare. She often fell asleep at once after turning out the light.

42.

27. xi. [19]17. Dreamt of the boy[94]—for the fourth time—he was blind, and I was helping him to throw a fly! The last time a few weeks ago I met him at the Birmingham Station. It was Revere but not the same in face. He was returning to duty at Newcastle. I had to tell him not to go as he had been killed on Aug. 30. He said it made no difference—many went back to their depots after they were killed—they just put on new faces!

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[92] Francis Llewellys Griffith (1862-1934), the influential Egyptologist, and his wife lived at 11 Norham Gardens, next door to the Oslers.

[93] The context makes it evident that WO recorded here something of Lady Osler's dream, not his own. It is included because it was part of WO's manuscript on dreams.

[94] Lt. E. Revere Osler was wounded while serving with his artillery battery near St. Julien on August 29th, 1917. Despite the incredible coincidence of the presence of Harvey Cushing, George Crile, William Darrach, and George Brewer—the last two of whom operated upon Revere—nothing could be done. One wound traversed the upper abdomen, another penetrated the chest just above the heart, and two others were in the thigh. Revere Osler died at 7 a.m., August 30, 1917. See Harvey Cushing, *From a Surgeon's Journal, 1915-1918* (Boston: Little, Brown, 1936), p. 197.

43.

[p. 434] 11. viii. [19]18. Singularly few dreams of a striking character this year. I have not been sleeping quite so well as usual, tho I still fall asleep at once after turning out the light. Have had several confirmations of the fact that I begin to dream immediately (see previous note).

44.

10. viii. [19]18. Most distressing dream about the execution by hanging of a boy of 9 in London, at the instigation of the Italian Govt. for the murder of a Bishop in Rome the year before. The boy had been smuggled out of Italy and abandoned in London and picked up by a woman who kept a shop in the East End—not anything like a London shop as it had a clapboarded front and a small window. The woman had a remarkable face, with an expression of concentrated grief such as I had never seen before. She lay in a wooden bunk at the back of the shop and an Italian sister was trying to comfort her. The side of the shop opened directly into a big church from which noises of a service could be heard. The woman rolled from side to side moaning "They tied his hands behind him, they put a rope about his small neck and they did not bandage his eyes." The sister explained that the boy had been executed that morning in front of the high altar. All day the face of the woman recurred.

45.

[p. 432] 11. viii. [19]18. Naturally on such days[95] one thinks a great deal of the great problems. Milton best expresses them.

In reality they have not bothered me much and yet as a judgement for some remark I had been given knowledge of what would happen for a year in advance. We were a merry party—Harry Osborne[96] and May[97] and the Kerr[98] girls Evelyn, Nadine and Toots, Mabel[99] and scores of friends—all in the ante-room through which a series of couples were passing to be married in groups at a sumptuous High Altar at which stood ex President Taft[100] in gorgeous vestments. To batches of 10 and 15 couples he read the entire Anglican service while we were talking loudly and smoking in the ante-room with wide open door. We got very bored with the length of the service, and at the clauses relating to the institution of matrimony we all laughed hilariously. We thought all was over when a belated couple arrived—a dark sinister looking man who has his hair brushed from two long wisps at the back, brought forward to cover his bald head. On his arm was a lovely looking girl, whom I at once recognized as C-a. N-t-l.[101] As they passed thro' silence fell on all as it seemed a tragedy that so evil a looking man should marry a sweet young girl. Then as he passed thro, one of the wisps of hair [p. 430] had fallen and bedraggled as low as his shoulder exposing one half of an unusually bald head. Mr. Taft roared out "Why are these people late?" and looking at the man called out to a man at a desk close by "Is this all right?" and without looking up he replied "Yes—go ahead." But Mr Taft left the altar and hurrying to where I stood talking to Mabel and Harry, he grasped me by the arm and said with a face furious with rage, "I will not do it unless you let me know what happens to him within a year." to which I replied "No cause for worry, she is already a widow to me. I have been attending her husband and the damned scoundrel died of aneurism more than a week ago." It was not that I was able to predict what would happen, but I lived just one year ahead as well as in the present, and had full knowledge of all that had happened. Only a few of my friends knew of this power and were sworn to secrecy and I had often refused to display my power as I dreaded lest people should get to know of it. Mable knew and she turned pale as she heard Mr Taft whisper to me. He returned to the altar and instead of reading the service as he had done he simply said "I pronounce you man and wife." With this he threw off his vestments and came into the ante-room and joined Mabel and me and May at bridge—a game I do not play.

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[95] I have been unable to determine why August 11, 1918 should have been a special day for WO. Because this is the last dream recorded in his book, there is no subsequent date to use as a point of reference. Conceivably he meant to write 11. xi. 18 (Armistice Day), but the date he actually wrote is unequivocally 11. viii. 18.

[96] Harry C. Osborne (1874-1949), was the second husband of Marian Francis (see n. 97), one of William Willoughby Francis's sisters.

[97] "May" was Marian Georgina Francis (1871-1931). WO was her godfather.

[98] Nadine Kerr (1885-1964) was the second wife of Edmund Featherston Osler, son of Sir Edmund Boyd Osler and nephew of WO.

[99] Probably Mabel Tremaine Brewster, a patient of WO since 1900 and thereafter, with her husband Robert, a close friend and frequent correspondent. See Cushing, *Life of Osler*, 1. 523.

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[100] William Howard Taft (1857-1930), was President of the USA from 1909 till 1913. The Oslers and Tafts were friends and neighbors on vacation at Pointe-a-Pie, Quebec Revere Osler and Charles Taft were about the same age and were much together during these vacation periods. See Cushing, *Life of Osler*, 1: 584.

[101] Carmelita Nuttall, daughter of G. H. F. Nuttall, who was at Johns Hopkins, where he was associated with Welch, and at Cambridge. In January, 1917, WO was helping care for Carmelita's wounded brother, at Oxford, and writing reassurringly to her (she was 15 at the time). See Cushing, *Life of Osler*, 2. 553.

46.

From the transcript, in the Cushing biographical material (No. 8303) of the letter of Osler to Mrs. Brewster,[102] addressed "Dear Mabel," 29 October 1919, during his last illness:

"—One night I had a terrible Bolshevist nightmare about you Robert and the children, but at the trial (held under the Univ[ersity] Club [N.Y.]) my little friend Jake Ebstein,[103] a Russian Jew was chief judge, and instead of being ordered out for execution we had passes for the Mauritania, and sailed at midnight!"

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[102] See n. 99.

[103] [Cannot identify. Ed.]

A FOURTEENTH-CENTURY LATIN POEM ON THE ART OF THE PHYSICIAN*

DONALD YATES

"When a doctor dies one comes to realize Death's boast. . . . Many the doctors who are enemies of the sick. . . ." These and other mordant observations on the medieval medical profession are part of an unusual Latin poem penned in a medical miscellany now in the Museum Carolino-Augusteum in Salzburg (MS 2164 fol. 58^{vb}). The anonymous poet, evidently a physician, glossed his copy of Galen's *De morbo et accidenti* and went on to place in a column left blank between that treatise and the following abbreviation of Cicero's *De amicitia* thirty-five rhymed hexameters on the limitations of medicine and on true and false practitioners.[1] The identity of the poet is to be sought in the history of the manuscript, which along with thirteen others in Salzburg[2] bears the ex-libris of a certain Magister Ulricus, a physician in Wroclaw (Breslau) who evidently studied in Italy and left his sizeable book collection, including rare medical texts dating back to the twelfth century, to an apothecary of the same city, Magister Zacharias.[3] The crossed *et*-sign, among other traits, suggests a student from north of the Alps, though the texts themselves are of Italian provenance. Written in a small rounded, finely shaded University *notula* hand of the fourteenth century, the verses show signs of having been composed on the spot. A line toward the end, for instance, has been reworked in such a way as to make one suspect that the author changed his mind as he wrote it.[4] The poet/copyist may be pronounced competent, if not daring or brilliant. Though some of the poem's blemishes must be attributed to haste, others reflect standard practices. Medieval Latin prosody freely permitted the lengthening of an otherwise short syllable, as in lines 11, 13, 18, and 26.[5] Certainly he shows a talent for the pointed remark (*sententia*), while at the same time he evinces a keen sense of the dramatic. Working within a narrow compass, he achieves effects that are controlled and precise. His verses, like the choice of texts in the manuscript as a whole, are a testimony to the humanistic interests in grammar and rhetoric cultivated alongside more practical ones at the great medical *studia* of Bologna, Padua, and Montpellier.[6]

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* I wish to thank the authorities of the Museum Carolino-Augusteum in Salzburg for their kind permission to publish this text, which I have studied on microfilm at the Hill Monastic Manuscript Library, St. John's Abbey and University, Collegeville, Minnesota.

[1] The glosses occur on fol. 44^{v}, 46^{r}, 48^{r-v}, and 50^{v}.

[2] Museum Carolino-Augusteum 859, 860, 861, 862, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 4003, and 4004.

[3] The only published guide to this important medical collection is the brief *Katalog uber die in der Bibliothek des Stadtischen Museums Carolino-Augusteum vorhandenen Salisburgensia* (Salzburg: Zaunrith'sche Buchdruckerei, 1870); a detailed analysis of its medieval MSS is forthcoming in my *Descriptive Inventories of Manuscript Collections Mirofilmed for the Hill Monastic Manuscript Library*, vol. 1.

[4] The copyist alters line 32 twice, crossing out the words indicated here by italics: Cur tu *conceptu* femineum conceptum *nosce* scire fateris. The word *brucis* in line 4 is in an erasure; one finds the form *brusca* elsewhere.

He begins by echoing a commonplace of medieval medical thought, the belief that medicine is divine because it was created by God, not by man.[7] Other *topoi* include the statement that medicine can only cure ills but not remove death itself;[8] the advice to the physician always to "consult Nature";[9] the declaration that mere words cannot heal though they often kill;[10] and the observation that the analysis of urine is frequently misleading.[11] Especially interesting for the history of medicine is the miniature catalogue of the physician's tools. This follows the opening general remarks by way of a device known as *cumulatio:* charms,[12] advice, minerals, roots, herbs, plant leaves, plant saps, plant resins, bloodletting, twigs, seeds, and grains. The thread of thought is spun around certain central concepts such as *Mors* (personified in "Death's boast") and *Natura* (called "wise" and "wayward"). After naming three famous types for the physician—Archigenes,[13] Hippocrates, and Galen—and after condemning unspecified false practitioners on account of excessive conjecture, ostentation, haste, or delay, the author considers a specific case, that of urine used to determine the sex of a fetus. Finally, with a plea for cautious Reason, he ends: he can hardly be said to conclude. One easily imagines this fourteenth-century physician-poet, having harkened at first to the soft voice of the Muse, suddenly being rapt away on a professional call.

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[5] In lines 30-31 the poet slips venially into elegiacs.

[6] In order to do justice to the style of the work, which is clearly of equal importance as the contents, I have translated the Latin verses into English heroic couplets, though my intent at the same time has been to provide an accurate version, as literal as possible. Some of the flavor of the original has been retained in what will strike the modern reader as archaisms.

[7] Cf. Testatur sapiens quod Deus Omnipotens/Fundavit physicam (*Regimen Sanitatis. Flos Medicinae Scholae Salerni,* translated with notes by Andrea Sinno, [Salerno· Ente Provinciale per il Turismo, 1941-49], part I, chap. 2, lines 1-2).

[8] Cf. Vitam prolongat, sed non medicina perennat (*ibid.,* chap. 2, line 8).

[9] Cf. Consule naturam, potens prudentior esse (*ibid.,* part X, chap. 2, art. 1, line 2).

[10] Cf. Sensus et ars medici curant, non verba sophistae:/Hic aegro relevat curis, verbis necat iste (*ibid.,* chap. 1, line 1).

[11] Cf. Mutant urinam frigus, calor . . . (*ibid.,* part VI, chap. 22, art. 16, line 1).

[12] Carmina laetificant animum (*ibid.,* part I, chap. 4, art. 5, line 1).

[13] Archigenes was a Syrian doctor of the Eclectic school who lived in Rome under the emperor Trajan and who is mentioned by Juvenal (6.236, 13.98, 14.252) and by Galen (see under "Archigenes" in the Index to C. G. Kühn, ed., *Claudii Galeni Opera Omnia* [Leipzig, 1821-33]).

TEXT

Omnipotens dominus plasmavit humi Medicinam,
Ut relevaret onus hominis morbique ruinam.
Carminibus, verbis, petris, radicibus, herbis.
Frondibus et sucis, lacrymis, venis quoque brucis,
Seminibus, granis, perit omnis morbus inanis.
A mortis cede subito, Medicina, recede.
Tunc Medicina perit, cum mors sua debita querit.
Si mors tardari posset medicoque levari,
Viveret Archigenes, Ypocras necnon Galienus:
Cum medicus moritur, tunc mortis gloria scitur!
Mors naturalis et morbus primicialis
Numquam curantur sed paulisper leviantur.
Fortis Natura per se curat mala plura,
Sed si lassatur, hanc phisicus auxiliatur.
Si nimis artatur et morbus predominatur,
Ars tunc cassatur medici, mors seva minatur.
Sagax Natura medici sit maxima cura,
Nam coniectura gravis est nimis ad sua iura.
Non medici vestis, aurum nec vana loquela
Morborum causas curant, sed recta medela.
Crebro mendaces medicos ego damno loquaces:
Mortem victuro tribuunt, vitam morituro.
Multi sunt medici qui sunt egris inimici,
Qui non scrutantur res sed subito medicantur,
Et sic purgantes fiunt persepe necantes.
Cum vaga Natura partes petit interiorum,
Tunc in censura multi titubant medicorum.
Multis cautelis morum gravitate fidelis
Utatur medicus nec sit nimis ipse pudicus.
Fallit in urina medicum deceptio bina:
Quod calet in gelido, friget et in calido.
Cur tu femineum conceptum scire fateris,

Urina dubitans an sit maris aut mulieris?
Cum medicus dubitat de morbi condicione,
Ignotum temptat quid dicere cum racione.

TRANSLATION

Almighty God shaped Medicine on mold
To relieve Disease's ruin and mankind's load.
With powders, brushwood, roots, and leaves, and herbs,
Bloodletting, stones, secretions, seeds, charms, words,
And potions, every ill falls dead away.
But quick! draw back from Death's fell sway,
Or perish, Medicine, when Death demands its due.
If Death could be delayed or cured by you,
Then Galen, Archigenes, and Hippocrates
Would be alive. Know Death's supremacy
When doctors die! The world's mortality
And first malaise can never be remedied,
Just eased a while. Much Nature cures no doubt,
But when she flags, the doctor helps her out;
And if she's pressed (Disease's triumph clear),
The doctor's art's in vain: dire Death draws near.
Be Nature sage the doctor's cure par excellence;
Conjecture is too risky for her gouvernance.
The doctor's clothes, his gold and pleasantries,
These work no cure, but proper remedies.
I curse loquacious doctors for their lies:
They kill the man who'd live, save him who'd die.
Many physicians are foes of the sick
And fail to study what is wrong but, quick,
Prescribe a cure, and often kill outright.
Others, when wayward Nature hides from sight,
Waver which course to take, caught in between.
The doctor, trusted for his graver mien,
Heeds warnings, but should not be *too* discreet.
In judging urine there's a twin deceit:
What warms up in the cold chills in the heat.
Why claim there is a fetal girl in growth,
When, from the urine, it could well be both?
A doctor doubting a disease's base
With reason tests what he should term the case.

MEDICO-HISTORICAL NEWS AND ACTIVITIES

CORRESPONDENCE AND REPORTS

AMERICAN COLLEGE OF PHYSICIANS AWARD

Kenneth M. Ludmerer, M.D., has been selected one of five Teaching and Research Scholars by the American College of Physicians for a three-year term effective July 1980. The award carries with it a grant that will help support his research in the history of medicine. It is believed that this award marks the first time that the American College of Physicians has supported work in any historical field. With his first degree from Harvard, Dr. Ludmerer won his M.D. from the Johns Hopkins. An extra year, mid-way in his medical program, he devoted to earning an M.A. in the history of medicine, and his master's essay he subsequently developed into the book, *Genetics and American Society*, published in 1972. He is now Assistant Professor of Medicine in the School of Medicine and Assistant Professor of History in the Faculty of Arts and Sciences at Washington University, St. Louis.

APPOINTMENTS IN THE HISTORY OF MEDICINE

Albert Einstein College of Medicine

Carleton B. Chapman, a distinguished heart specialist, medical educator and scholar, has joined the Albert Einstein College of Medicine, New York, as chairman of the medical school's History of Medicine Department. In his new post, Dr. Chapman will teach, organize courses and broaden the scope of the department in interrelated areas of law, ethics and medicine. In addition, Dr. Chapman, who has published extensively on the history of scientific investigations and medical education, plans to continue his scholarly and writing activity in these fields as well as in several areas of biomedical studies.

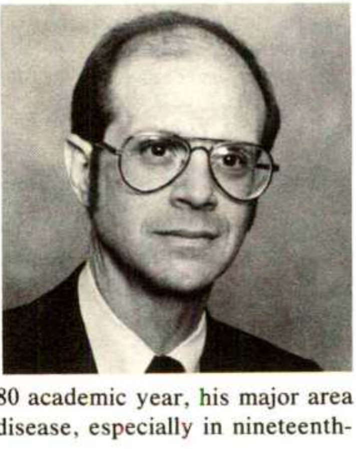
Dr. Chapman has most recently been associated with the Commonwealth Fund, serving as its president since 1975. The Fund, a private foundation, primarily supports health and higher education. Other highlights of his career, have been Dr. Chapman's service as Professor of Medicine at the University of Texas Southwestern

Medical School (1953-1966) and Dean of the Dartmouth Medical School (1966-1973). While at Dartmouth, he served as Chairman of the Council of Deans of the Association of American Medical Colleges. Dr. Chapman earned his B.A. and M.S. degrees from Oxford University, where he was a Rhodes Scholar in Physiology. His M.D. degree was earned in 1941 at Harvard University, which also awarded him the M.P.H. degree in 1944.

Indiana University

Ann G. Carmichael has been appointed Assistant Professor of the History of Medicine at Indiana University. Dr. Carmichael received both the M.D. and Ph.D. degrees at Duke University, where she held a Josiah C. Macy, Jr., Foundation fellowship from 1970 to 1976. Her active research interests include historical epidemiology, especially in the Early Modern Europe period, and her dissertation (1978) was a study of "Epidemic Diseases in Early Renaissance Florence." She teaches full time at the Bloomington Campus, in both the History and the History and Philosophy of Science Departments, and consults with the Indiana Historical Society on projects in state history related to the history of medicine.

Louisiana State University School of Medicine



Robert J. Miciotto has accepted a position as Assistant Professor of the history of medicine at the L.S.U. School of Medicine in New Orleans. His appointment is in the departments of Medical Bibliography and Public Health and Preventive Medicine, and begins in September 1980. Dr. Miciotto is a native of Louisiana, and a medical technologist who received a B.A. in history from Centenary College of Louisiana in 1973. That same year he matriculated at the Institute of the History of Medicine of the Johns Hopkins University School of Medicine and he received his Ph.D. in 1979. A Postdoctoral Fellow at the Institute during the 1979-1980 academic year, his major area of historical interest is in varying concepts of disease, especially in nineteenth- and twentieth-century medicine.

ANNOUNCEMENTS

NATIONAL NEWS

History of Science Society

Oct. 16-19, 1980: Science and Technology Studies: Toronto-80, the first joint meeting of the History of Science Society, the Philosophy of Science Association, the Society for the History of Technology, and the Social Studies of Science Society, will be held at the Park Plaza Hotel and the University of Toronto. Each society will have its full regular program, as well as special interdisciplinary sessions of more general interest. Registration fees are (U.S.) $15 for members, $25 for non-members ($17 or $28 respectively in Canadian funds). For further information please write Local Arrangements Committee, Institute for the History and Philosophy of Science and Technology, University of Toronto, Toronto, Canada, M5S 1A1.

Princeton University

Professor Gerald Geison has succeeded Charles C. Gillispie as Director of the Program in History and Philosophy of Science in Princeton University. Professor Gillispie has been appointed Directeur d'Etudes Associés in the Ecole des Hautes Etudes en Sciences Sociales in Paris for the academic year 1980-81 and the spring semester of the year 1981-82. He will offer a seminar "Science et politique en France (1770-1830)," and will return to Princeton for the fall semester 1981-82. In the fall semester 1980-81, Michael Mulkay of the University of York will be a visiting professor in the Program at Princeton. He will teach a seminar on historical sociology of science.

Rockefeller Archive Center

During 1980 the Rockefeller University made 13 grants-in-aid to support projects requiring substantial research in the Rockefeller Archive Center. Further grants, ranging from $500 to $1000, will be made to graduate students or advanced scholars engaged in similar projects for the year 1980. Applications for grants should be made before December 31, 1980. Inquiries about the program and the collections at the Center should be addressed to: Director, Rockefeller Archive Center, Pocantico Hills, North Tarrytown, NY 10591.

University of Missouri at Columbia

The Tenth Symposium on Philosophy and Medicine, "The Concept of Person and Its Implications for the Use of the Fetus in Biomedicine," will be held at the University of Missouri-Columbia on October 29-31, 1980. Major speakers will include John Biggers, H. Tristram Engelhardt, Jr., Leonard Glantz, Susan Nicholson, Roland Pucetti, Pierre Sopart, LeRoy Walters, Caroline Whitbeck, and Patricia White. For further information please contact: Professors William

Bondeson or Daniel Winship at University of Missouri-Columbia, 420 General Classroom Building, Columbia, Missouri 65201; Professor H. Tristram Engelhardt, Jr., Kennedy Institute of Ethics, Center for Bioethics, Georgetown University, Washington, D.C. 20057; or Professor Stuart F. Spicker, Department of Community Medicine and Health Care, The University of Connecticut Health Center, Farmington, Connecticut 06032.

PROGRAMS OF MEETINGS

Tulane University School of Medicine History of Medicine Society, New Orleans

October 19, 1979: "Changing Image of the American Physician," John Duffy.

November 27, 1979: "The Historical Development of the National Leprosarium," Richard O'Connor.

December 12, 1979: "Osler Recommends Chloroform at 60," Horton Johnson.

February 13, 1980: "Personal Observations on Medical Changes during the Past Half Century," Alton Ochsner, Sr.

February 27, 1980: "The History of Aerospace Medicine," Joseph Kerwin.

March 12, 1980: "The Past 30 Years of Neurology and Psychiatry in New Orleans," Robert Heath.

April 19, 1980: "Disease Patterns, Medical Efficacy and the Physician's Role in Western Society," Gerald Geison.

May 14, 1980: "Mesmerism in New Orleans, 1845-1860," Wallace K. Tomlinson.

NEWS FROM ABROAD

University of Ottawa

The program in the History of Medicine, University of Ottawa presented a series of seven lectures on "The Hospital in History" in February-March 1980. Toby Gelfand, Hannah Professor at the University of Ottawa, spoke on "Hospitality in Ancient Greece?" "The Church Hospital," "The Enlightenment Hospital," and "The Heroic Hospital in 19th-century Paris." Three guest lecturers also participated: Grace Goldin, "Art and Architecture of Hospitals, 1200-1800," Morris J. Vogel, "The Invention of the Modern Hospital in America," and Katherine McCuaig, "Summer Camp to Specialized Hospital: TB Institutions in Canada, 1850-1900."

BOOK REVIEWS

MEDICAL SCHOOLS: HOW SHOULD WE WRITE THEIR HISTORIES?

EDWARD C. ATWATER*

An Essay Review

W. DAVID BAIRD. *Medical Education in Arkansas, 1879-1978*. Memphis: Memphis State University Press, 1979. 505 pp. Ill. $18.00.

MURRAY L. BARR. *A Century of Medicine at Western: A Centennial History of the Faculty of Medicine, University of Western Ontario*. London, Canada: University of Western Ontario, 1977. xiv + 672 pp. Ill. $15.00.

MARTIN KAUFMAN. *The University of Vermont College of Medicine*. Hanover, N.H.: University of Vermont College of Medicine; distributed by the University Press of New England, 1979. xviii + 275 pp. Ill. $15.00.

K. F. RUSSELL. *The Melbourne Medical School, 1862-1962*. Melbourne, Australia: Melbourne University Press, 1977. xiv + 277 pp. Ill. $30.00.

Between 1905, when the three-volume history of the Harvard Medical School by Thomas F. Harrington and James G. Mumford was published, and 1943, when Benjamin Spector wrote his history of the medical school at Tufts University, not a single major medical college history was published. This 38-year silence is all the more remarkable because, during the subsequent 37 years, at least forty such histories have appeared and the rate is accelerating. What was a trickle in the 1940s has become a flood by the 1970s.

The post-1905 "dry spell" can probably be attributed to the fact that few schools then wished to be reminded of their past. Only a new (and rich) school, such as the one at Rochester, could afford the self-congratulatory vanity of a hard-bound progress report. For most, the medical school pogroms which occurred in the early 20th century, incited by surveys done by the AMA's Committee on Medical Education and by the Carnegie Foundation, and consummated with the financial backing of the Rockefeller General Education Board, did not encourage reverence for collegiate ancestry. In the struggle for funds and survival which followed, no school was anxious to expose its recent condition to further public scrutiny. For over a generation the Flexner Report of 1910 served as the history of all American medical schools.

In the 19th century, before all this happened, institutional histories had usually consisted of brief surveys. Many were chronological narratives, some recalling earlier times and teachers, others polemically attacking or defending factions within the faculty, administration, or local profession: most, however, were designed to promote the school in the minds of students. At least forty of these brief histories exist, most of them originating as introductory or valedictory addresses at medical schools. The earliest was probably David Hosack's 16-page "Sketch of the origins and progress of the Medical Schools of New York and Philadelphia; being an extract from an introductory lecture delivered upon the re-organization of the College of Physicians and Surgeons in 1811." Even the first book-length work, Joseph Carson's history of the medical school at the University of Pennsylvania (1869), was an expansion of an introductory lecture Carson had given a few years earlier at the school's centenary. Only six schools had book-length histories prior to 1943: the University of Pennsylvania Medical School, Jefferson Medical College, New York's College of Physicians and Surgeons, Harvard Medical School, the Woman's Medical College of Pennsylvania, and the long defunct medical school of Transylvania University.

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* University of Rochester

To what do we owe the recent increase in institutional histories? Who writes them and why? The history of American medical schools has been almost entirely in the hands of senior or retired faculty. Of 34 persons who could be individually identified as authors in the 1943-80 period, twenty-four were professors (or emeriti) at the school about which they were writing: Twelve of these professorial authors were, or had been, deans as well. There was a slight predominance of laboratory scientists over clinical faculty (14 to 10) and a clear preponderance of professors of anatomy (8) and professors of medicine (7) within the two groups. Only three authors were full-time practitioners, and only six were historians by training (four of whom wrote in the past decade and two of whom are subjects of the present review).

The reason for the reluctance of professional historians to enter the field of institutional history may be the rather limited purpose such histories have usually had. Joseph Carson (1869) wrote "mainly for fellow alumni." John C. Dalton, president and professor emeritus of physiology at New York's College of Physicians and Surgeons, felt in 1888 an obligation "to collect in a permanent and accessible form, the records of [the school's] growth." Clara Marshall, dean and professor of materia medica at the Woman's Medical College of Pennsylvania prepared her history of that school (1897) to be one of a collection of histories of medical colleges for women which the federal government planned to publish. Dr. Spector, writing of Tufts in 1943, wanted "to keep this heritage before us . . . [and provide] a unified, coherent background and a reasonable chronology of the important events . . . not [now] at hand." Frederick Clayton Waite, in his history of Western Reserve, said that "many erroneous, contradictory, and confused statements made it apparent that a systematic history based upon authentic records would give the teaching staff, alumni, and other friends of the institution information to replace the many traditions, some of them sadly awry." Often histories have been written to commemorate an anniversary—a centenary in the case of three of the four volumes considered here. Frequently, the focus was on the details of the school and not on their significance. This is not much of a challenge for the career historian.

One such author recently hoped to extend the significance of his topic. In the history of the Medical School at Duke University (1972), James E. Gifford wrote "for medical educators and social scientists concerned with the changing forms of medical education and the delivery of health care in the United States." But many professional historians, hoping to bring a more comprehensive view to the subject of medical history, have not been as able as Gifford to restrain themselves from sociological polemic and grandiose generalizations.

One need not be a Marxist to discern one motive for the recent increase in medical school histories—fund raising. Since the Second World War medical schools have become increasingly dependent on public subsidies of various kinds. It is not uncommon for more than 50% of the operating income of even a private school to be derived from public sources. A much smaller but growing type of income is annual alumni giving. Unlike the 19th century when virtually all school funds came from tuition and when the purpose of image-building was to attract students, today there are students aplenty and the goal of a school's public relations department is to project on the minds of Federal granting agencies, foundation directors, voters, and alumni alike the image of a school's excellence and prestige. Even the titles of such recent books as *Medicine at Harvard: The First 300 Years* (the medical school's formal existence being but 200 years), Hopkins' *Heritage of Excellence,* and Rochester's *To Each His Farthest Star* hint at such a purpose. Evoking pride in the hearts of alumni and largesse from the purses of philanthropists and the Federal Treasury has become another use of institutional history.

These histories may also provide a valuable documentary record. Some contain a substantial amount of information which may have more general applicability than just the parochial confines of the subject. The topically oriented essays presented by the University of Rochester (1975) for its 50th anniversary (*To Each . . .*) are an example of this. Other histories include or append letters, agreements or charters that deal with the relationships between civil or collegiate authorities, hospital boards, faculties, philanthropists and funding agencies, or professional organizations, thus assuring them of preservation and making them easily available to other historians. In this respect the three volumes (1943-63) on the Johns Hopkins by Alan Chesney, and a more recent (1974) fourth volume by Thomas Turner, are notable. So too is Harrington's three-volume history of Harvard (1905) which includes much documentation and some identifying information on almost every one of the school's 5,000 graduates. Even the modest book by Ernest E. Irons on Rush Medical College (1953) contains an appendix with five essential documents. Frederick William Norwood's 1944 classic *Medical Education in the United States before the Civil War* is actually a documentary source book based primarily on such ephemeral things as catalogues, announcements, and circulars and was intended "to draw from obscurity many relatively unknown institutions."

Histories of defunct institutions are really a separate genre since they have no direct promotional aspect and are written by non-participants. The literature is particularly rich in these. Frederick Clayton Waite, the professor of anatomy at Western Reserve who wrote that school's history, also recorded the histories of Castleton Medical College (1949), Vermont Medical College (Woodstock) (1945), and the New England Female Medical College (1950). One excellent aspect of his works are the appendices in which he records the names of graduates and nongraduates and any information he was able to obtain about them. Similar books by Harold J. Abrahams on the extinct medical schools of Baltimore and of Philadelphia, as well as David L. Cowen's little volume (1966) on the Queens-Rutgers Medical School also provide good examples of this type of documentation.

Many medical schools are open to criticism for their lack of archival policies and their capricious manner in saving records, a matter in which they strikingly deviate from the methodical and scientific approach they espouse in other activities. The actions of all institutions, including medical schools and the people who comprise them, reflect the mood of the society in which they operate. The record of those actions and the reasoning on which they were based may provide a glimpse of that society quite as real as its novels, its architecture, or its leisure pastimes. Should not this record, too, ultimately become part of the public domain? For example, records which illustrate the evolution of thinking about qualifications for professional training, whether on the basis of some type of intellectual competence, or some racial, social, or sexual identity have historical importance beyond the immediate issue. Though it is proper to impound or restrict sensitive material and to protect an individual's right to privacy, it is another thing to tolerate casual clerical censorship; inadvertent or careless disposal by the brooms of new administrators; or calculated deletion by devoted secretaries who feel compelled to suppress sensitive material they fear may cause embarrassment to a school or reflect unflatteringly on the image of their employer. This ultimate judgement, whose decision can never be revised or reassessed in future times when wider perspective is possible, should be condemned. The failure of most institutions to develop objective and rational archival policies and procedures has been another significant factor in limiting the importance of institutional history. This problem will be aggravated by the recent freedom of information legislation[1] whose effect may ultimately be quite the contrary by limiting the availability of or leading to destruction of records.

What questions might a good institutional history be expected to consider? One would like to know the circumstances and reasons for the founding of the school. The evolution of major curricular changes should be traced. The School's success in attracting the subsidies which all professional education requires, of acquiring and conserving endowment and, more recently, in attracting government grants with which to pay its faculty, should be examined. Rarely have good schools or periods of great strength in a school not been associated with financial prosperity.

What has been the school's relationship with those it serves and on whom it is dependent? How did the relationship between the school and its clinical facilities develop? How has it dealt with the medical profession in the community—the town-gown situation? How has it dealt with governmental authorities in such matters as charters, regulatory statutes, tax support, licensure standards? How did it cope with such science versus society conflicts as grave robbing, vivisection, "experimenting" on the sick poor, the profession's hope to restrict its membership in order to sustain excellence and reduce competition as opposed to the public's want of convenience and doctors-a-plenty?

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[1] [Family Educational Rights and Privacy Act of 1974, as amended].

Many histories deal adequately with these subjects. Other topics are treated in a less satisfactory manner. In describing what students actually were taught (there is a large body of student notebooks which has survived) and how the changes in knowledge and technology made curricular modifications necessary they are much less instructive. They are also not very informative about the processes of school government, and decision making. How were members of the faculty chosen and on what basis were they promoted? Who were sought as students and who matriculated? Is there change over time in the social groups from which students come? How have schools dealt with "disadvantaged groups" whether German and Irish in the 19th century, Jewish in the early 20th century, or blacks and Spanish in our own time—to say nothing of women? The sociology or demography of professional education is virtually an untouched subject, though the Beecher-Altschule history of Harvard Medical School (1977) makes a valiant attempt at some aspects of this question. Related to this issue is a school's record in providing assistance for its students, whether by means of scholarships, grants-in-aid or loans. How has the profession and society benefited from the existence of the school? What have been the innovations brought about by its graduates and faculty? Was the school a pacesetter in research or at least was it at one time an innovator in medical education? Has the public received its money's worth?

The four most recent medical school histories, being reviewed here, are all interesting and enjoyable. They are among the best-balanced and most readable accounts of institutions that have yet appeared. Like similar books before them, they answer, or at least address, many of the questions asked above, though not some of the more difficult ones. Each gives a suitable narrative account of its school, avoiding as much as possible a litany of curricular and faculty changes and the "who begat whom" flavor which inevitably results. Each book will appeal primarily to a somewhat different audience—Australian, Canadian, or American—though interest is certainly not restricted to affiliated readers.

In spite of the wide geographical disparity of these four schools there is a surprising similarity in the problems each school faced. That the evolution of each of these four schools follows so similar a pattern suggests that external factors largely dominate the changes in medical education just as they have been shown to do in research. One must conclude that it is in the atmosphere created by the faculty and the character of the students attracted to the school that significant differences lie. Though respectable enough, probably none of the four schools described in these books would be thought of as bellwethers in research or educational innovation. The evolution of medical education is reflected but not created by the institutions written about here. Nevertheless, each has a story to tell and it is interesting to see how each school coped with its problems.

Dr. Russell (Melbourne) shows best the impact of individuals and their personalities on a school; he, more than the other authors, provides character sketches which make the participants seem real and shows the important effect that idiosyncrasies, adulation, and prolonged tenure of leaders may have. Dr. Barr (Western Ontario) and Professor Kaufman (Vermont) provide considerable description of medical student life and this gives the reader a sense of reality. Professor Baird (Arkansas) deals most effectively with the relationship between the school and the professional community. Baird and Kaufman, perhaps because they are professional historians, seem to provide the broadest perspective and the most historical analysis.

None of these books comes to grips with the difficult business of evaluating the purpose or product of the schools: physicians and new knowledge. In the early years none of these schools was much involved in research and, even today, they serve more as training grounds for practitioners than institutes for discovery. Baird and Barr give the most extensive description of research at their institutions, Barr especially, reflecting perhaps his own interest in it. Barr is really the only author who tells much about the graduates, selecting some of the more prominent ones for testimonial mention. None of the books undertakes the onerous task of tracing and analyzing the body of graduates and their professional contributions.

Each volume is a respectable product of the bookmaker's art although the Vermont book stands out. Some readers may prefer footnotes to the marginal ones employed by Kaufman, but they are more convenient than Baird's and Barr's terminal notes (for Barr's the textual subscript reference numbers seem to have been inadvertently omitted.) Russell provides no notes. All the books provide bibliographies and indices though Barr's book is less satisfactory in this respect, both because the bibliography does not list primary material and the index is non-topical, including only names. Each volume has numerous and interesting illustrations, the reproductions being best in the works on Vermont and Melbourne.

Though it cannot be said that any major new ground has been broken by these books, each is a worthy addition to the field of institutional history and, at least, meets the presently accepted standards for such works. For future medical school biographers, however, there are a number of important questions still to be answered. The backgrounds and aspirations of students, the choice and calibre of faculty, and the effects of technology and third-party funding on medical education have not yet been studied in any detail. The effects of residency programs, specialization, graduate education and the changing character of hospitals from largely charitable institutions to citadels of sophisticated technology beckon the historian. Finally there remains the question of what kind of physician individual medical schools produced and what contributions they made to medical knowledge and practice.

CHARLES E. ROSENBERG (Editor). *Healing and History: Essays for George Rosen.* New York: Science History Publications, 1979. viii + 262 pp. Ill. $22.75.

Originally intended as a festschrift for presentation to George Rosen upon his expected retirement in 1978, this volume of essays unhappily became a memorial volume instead, following his sudden death in the summer of 1977. Like most such volumes, its contents are varied. The essays range in time from antiquity to the present, with the nineteenth century most heavily represented; ethics, art, psychiatry, diseases, and public health are all touched on. Each essay, however, exhibits in some way the central theme that persists in all of Rosen's own historical writing, his concern for medicine as a social phenomenon.

Two of the essays, "George Rosen and the Social History of Medicine" by Charles E. Rosenberg (pp. 1-5) and "Dr. George Rosen: An Appreciation" by Saul Benison (pp. 242-251), examine sympathetically Rosen's own career and his place in medical historiography. Though born in the United States, Rosen received his medical training in Germany in the early 1930s, where he first joined the then-young group of medically trained medical historians, mostly German or Swiss—Sigerist, Temkin, Ackerknecht, and Pagel are mentioned—who were seeking to place the history of medicine in its larger philosophical, cultural, social, and economic context. (In the United States, where the social history of medicine was pioneered by Shryock, a comparable interest came until recently chiefly out of history departments.) Examining the history of medicine in numerous articles and in monographs on fees and fee bills, specialization, miners' diseases, public health, and mental illness with the special insight of historical sociology, Rosen with others has made it impossible to think of medicine purely as a set of ideas in human biology without reference to the external forces shaping its theory and even more its practice. If the importance of these external forces seems a truism now to most medical historians, this is a measure of Rosen's success in demonstrating this viewpoint both in methodological articles and in practice.

Other essays in the volume include "Medical Ethics and Honoraria in Late Antiquity" (pp. 6-26) in which Owsei Temkin, with characteristic breadth of learning, examines changing views on the subject of fees and free medical service to the poor, particularly as it was affected by the spread of Christianity. In "The Impact of Hugo van der Goes's Mental Illness and Late-Medieval Religious Attitudes on the *Death of the Virgin*" (pp. 27-50), Susan Koslow finds the sources of the unusual characteristics of the painting primarily in the cultural context of the artist's own monastic order and the order for which the painting was created, rather than in his psychopathology, as others have suggested; it is a well-researched reminder that what may appear abnormal to one culture is not necessarily abnormal in another. In "The 'Epidemia Rheumatica' Described by Lancisi (1711)" (pp. 51-58), Saul Jarcho analyzes Lancisi's relatively little known account of what was probably pandemic influenza.

Dora B. Weiner places the psychiatric thought of Pinel in the context of his early career in "Health and Mental Health in the Thought of Philippe Pinel: The Emergence of Psychiatry during the French Revolution" (pp. 59-85). She stresses his concern with health as well as illness and, taking issue with Michel Foucault and the "anti-psychiatric movement," the importance of Pinel's having been a humane physician deeply concerned with individual patients. The study is a valuable addition to the author's other articles on Pinel and his times.

In a brief essay on "German Jews, English Dissenters, French Protestants: Nineteenth-Century Pioneers of Modern Medicine and Science" (pp. 86-96), Erwin Ackerknecht suggests that the notable contributions of these groups, out of all proportion to their size, may have stemmed from their persecution and suffering as minorities. This may be more acceptable than a genetic or "racial" explanation but still leaves most of the questions unanswered. Why, for example, were all three groups notably literate (if, indeed, this was the case)? What was the influence of landholding patterns imposed by the ruling classes? The phenomenon pointed out by Ackerknecht is an interesting conjunction worth examining further.

Turning to the history of hospitals, W. F. Bynum gives an overview of "Hospital, Disease and Community: The London Fever Hospital, 1801-1850" (pp. 97-115). This hospital, he reports, represented an attempt through private charitable action not only to provide better care for a certain class of patients than they could receive at home but also to serve a preventive function by taking them away from a home where they might infect others. Its inadequacy demonstrated, if nothing else, the need for more extensive public measures to attack the problem of urban infectious disease. In a somewhat related article, "Florence Nightingale on Contagion: The Hospital as Moral Universe" (pp. 116-136), Charles E. Rosenberg argues that Nightingale's anticontagionism and opposition to the germ theory were based on a moral view of the nature of health and disease and the social order. If disease resulted from unclean environmental conditions, then it was subject to personal or social control and health was a matter of personal responsibility, whereas contagionism implied a fatalistic determinism and an excuse for doing nothing. It forms an interesting contrast that Rosenberg sees in Nightingale a moral imperative to attack contagionism because it would result in a do-nothing policy, whereas Ackerknecht saw a "liberal" imperative to attack contagionism because it provided a rationale for a bureaucratic, interventionist quarantine.[1] Such generalizations are often thought-provoking, but must still be viewed cautiously and comparatively.

In " 'All According to the Constitooshun': Charles Dickens and Lead Poisoning" (pp. 137-148), Lloyd G. Stevenson discusses the slow advance of industrial hygiene in nineteenth-century Britain in relation to lead poisoning and the effect of social attitudes on the explanations offered for continued existence of the disease among some workers but not others. Even so perceptive and sympathetic a reporter as Charles Dickens, after visiting a victim in her wretched home and the factory where she had worked, accepted the view that lead poisoning must be laid to individual constitution. At a later date Dr. J. T. Arlidge transferred the blame to workers' personal habits, at least in part. The issues of personal, industrial, other environmental, and governmental causes and responsibilities for the major killing diseases in our society are very much with us today, and studies such as these by Bynum, Rosenberg, and Stevenson help to show the kind of nonscientific factors involved in determining which solutions may be supported by different individuals and groups.

Jacques Quen, in "Isaac Ray: 'The Greatest Amount of Good with the Smallest Amount of Harm' " (pp. 149-160), reports on the unsuccessful efforts of Isaac Ray, as a member of the Board of Guardians, to improve conditions in the treatment of the insane at the Philadelphia Almshouse in the 1870s. His failure is laid to general social and political conditions rather than any inadequacy of his professional views. John Duffy describes the gradual improvement in "School Buildings and the Health of American School Children in the Nineteenth Century" (pp.

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[1] "Anticontagionism between 1821 and 1867," *Bull. Hist. Med.*, 1948, *22*. 562-593.

161-178), especially as set forth in official reports. Taking his theme from Rosen's presidential address to the American Association for the History of Medicine in 1966, Gert Brieger, in "Dyspepsia: The American Disease? Needs and Opportunities for Research" (pp. 179-190), suggests that further examination of the history of this widely prevalent but little studied malady might teach us much about the actual medical practice of the nineteenth century. Moving to the twentieth century, Michael Shepherd concentrates on "From Social Medicine to Social Psychiatry: The Achievement of Sir Aubrey Lewis" (pp. 191-204). Lewis is clearly his hero, to whom nearly all credit is given for introducing a social approach to mental problems. Arthur J. Viseltear, using Winslow's papers at Yale as well as his published writings, describes "C.-E. A. Winslow: His Era and His Contribution to Medical Care" (pp. 205-228), especially in relation to the Committee on the Costs of Medical Care. As often happens in biographical sketches by enthusiastic supporters, the presentation seems somewhat one-sided. The final article (except for Benison on Rosen) is by Alfred Yankauer, who describes his predecessor's term as editor of "The American Journal of Public Health, 1957-1973" (pp. 229-241). In so doing he also examines the results of increasing specialization, money for research, and the divorce of practitioners from academics. The article thus brings us up to the present and many of the problems facing public health as a profession today.

Concluding the volume is a useful bibliography of Rosen's writings. Regrettably the compilation appears to have been closed late in 1976, so that a number of subsequent articles have been omitted: "Social science and health in the United States in the twentieth century," *Clio Medica*, 1976, *11:* 245-268; "Edmund A. Parkes in the development of hygiene," *Jour. Roy. Army Med. Corps*, 1976, *122:* 187-191; "Contract or lodge practice and its influence on medical attitudes to health insurance," *A. J. P. H.*, 1977, *67:* 374-378; "Early studies of occupational health in New York City in the 1870s," *ibid.*, 1977, *67:* 1100-1102; "Nicholas Senn's experimental work on cancer transmissibility," *Amer. Jour. Surg. Pathol.*, 1977, *1:* 85-87; "Rudolf Virchow and Neanderthal man," *ibid.*, 1977, *1:* 183-187; "The pediatrician as historian: John Ruhräh and Ernest Caulfield," *Bull. Hist. Med.*, 1977, *51:* 188-201. Also wanting are biographical sketches of S. J. Baker, M. J. Rosenau, F. G. Blake, and perhaps others in successive supplements to the *Dictionary of American Biography*.

Summing up such a diverse collection is difficult. The articles, inevitably, vary in breadth of approach and amount of research as well as in subject matter, and readers' reactions will differ according to their own interests. One cannot doubt, however, that Dr. Rosen would have been pleased to receive a volume by colleagues and friends reflecting so many of his own interests. It is no derogation to add that Rosen's greatest monument will remain his own body of distinguished and pioneering works in the social history of medicine. •

Reviewed by John B. Blake, Ph.D., History of Medicine Division, National Library of Medicine, Bethesda, Md.

W. J. RORABAUGH. *The Alcoholic Republic: An American Tradition.* New York: Oxford University Press, 1979. xvi + 302 pp. Ill. $14.95.

IAN R. TYRRELL. *Sobering Up: From Temperance to Prohibition in Antebellum America, 1800-1860.* Westport, Conn.: Greenwood Press, 1979. xii + 350 pp. $23.95.

Between 1790 and 1830 the consumption of alcohol per capita in the United States was far larger than it had ever been before in this country or has ever been since. It was so shockingly large, in fact, as to provide a direct stimulus to America's first great temperance movement.

The two excellent works under review examine these aspects of early American history. The volumes cry out to be considered as a pair. To be sure, neither one focusses at all directly upon the strictly medical aspects of alcohol and its consumption. At the same time, however, they treat the fringes of a number of medical-historical concerns so thoroughly and in such a fascinating way as to demonstrate their considerable significance for the historian of American medicine.

While both works are concerned primarily with the pre-Civil War period of American drinking, there is remarkably little overlap in the material covered. Rorabaugh's *Alcoholic Republic* is essentially an examination of changes in American drinking patterns between 1790 and 1840, though to clarify those years he provides considerable background discussion of the colonial period as well. He gives much attention to the economics and the statistics of alcohol consumption, as well as to such matters as the expanding technology of distillation and the various factors which modified social attitudes toward drinking.

Rorabaugh is particularly interested in exploring the motivations behind this abnormal volume of early American drinking, and he takes advantage of his rich historical material to attempt to "test hypotheses from the literature on alcohol." Chapter five considers the heavy drinking of the period in terms of the multitude of insecurities of nineteenth-century life, while Chapter six includes an examination of the psychology of communal drinking to excess in connection with weddings, holidays, or elections. The author also discusses the contrasting phenomenon of solitary drinking, a habit which came to be thought of as a disease at this time. Its most conspicuous aspect, of course, was the alarming incidence of delirium tremens, which first came into notice in the 1820s.

The Rorabaugh volume includes two other sections of medical interest. Chapter two takes general note of certain late eighteenth-century medical opinions of the harmful nature of drinking, but the main focus here is upon Benjamin Rush and his popular tract, *An Inquiry into the Effects of Spirituous Liquors.* More original is the excellent chapter on the relation of American dietary habits to the high consumption of alcohol. These pages remind us, not only that water was notoriously unfit to drink at this time, but that cooking was so greasy, starchy, and monotonous that the use of wine, cider, or whisky in copious amounts was almost a necessity to wash the food down.

Sobering Up picks up almost exactly where *The Alcoholic Republic* leaves off. The Tyrrell volume is a detailed examination of American society's determined response to its alarming drinking problem. More precisely, it explores the evolution and anatomy of one of the early and mid-nineteenth century's best organized and most vigorous social reforms, the temperance movement. One of the author's objectives is to study the "social origins of temperance," and to sort out and assess the various sources of support for the movement. These included most prominently clergymen, business leaders, and women, but also labor groups, physicians, and others. Additional aims are the examination of the processes of temperance agitation, the societies and organs involved, their diverse strategies and approaches, and the culmination of these activities in numerous state and local prohibition laws in the 1850s.

Tyrrell points out that prohibition laws were frequently argued for on the basis of a need to protect public health as well as morals. He also examines briefly the circumvention of such laws on the part of individuals licensed to sell liquor for medicinal purposes. He does not go into the even larger problem posed by the high alcoholic content of patent medicines, which were sold entirely legally. In fact, his book includes less specifically medical matter than the Rorabaugh work. Nevertheless, the moral, evangelical, and business forces which Tyrrell is exploring here were fully as basic to the history of hospital formation, asylum building, and public health agitation as they were to the progress of the temperance movement. The details of the operation of these forces hold as much underlying interest for the medical historian as for the social historian.

I have no major reservations about either book. The Tyrrell volume has a certain amount of duplication and a pedestrian style, but it is nonetheless clearly written and persuasively argued. The Rorabaugh volume carries its inferences about nineteenth-century drinking psychology rather too far, in my estimation, but this does not detract seriously from the originality and value of the work. In sum, both are solid scholarly studies, exhaustively researched in original sources. Interesting as well as informative, they provide extensive illumination of a rich phase of American history.

Reviewed by James H. Cassedy, Ph.D., History of Medicine Division, National Library of Medicine, Bethesda, Md.

The Parisian Education of an American Surgeon: Letters of Jonathan Mason Warren (1832-1835). With notes and introduction by Russell M. Jones. Philadelphia: The American Philosophical Society, 1978 (Memoirs of the American Philosophical Society, vol. 128). 266 pp. Ill. $8.00.

A certain theatricality, an almost classic unity of time, place and subject pervade this eye-witness account of Paris medicine at the zenith of its world reputation. One is tempted to think of the correspondence of Jonathan Mason Warren (1811-1867) as a medical passion play in three acts—the winters he studied in Paris (with summer intermissions in Britain and diverse European settings)—and 51 scenes—the graphic letters, all addressed to his father, the distinguished Boston surgeon, John Collins Warren, and all devoted virtually exclusively, if not obsessively, to the action of the clinic.

If Mason Warren, a medical doctor in his early twenties, recently graduated from Harvard, seems to follow someone else's directions in reporting his story, such was indeed the case. For the elder Warren, who had himself studied in Paris a generation earlier, armed his son with preliminary "instructions" running to some forty pages. These told the young man whom, where, and what to visit; information on twenty specific procedures, mostly surgical operations, was requested, and new books, instruments, bones, and even soft body parts were to be posted regularly to Boston. The instructions were more than faithfully executed.

When the curtain rises (the first letter was written just one week after the American's arrival in Paris), Mason Warren has already observed the two major actors on stage in their respective hospital clinics—the surgeon, Guillaume Dupuytren, at the Hôtel-Dieu, and the physician, P. C. A. Louis, at the Pitié. It is fitting that the death of the great Dupuytren should occur near the conclusion of the correspondence (letter of February 12, 1835); Mason Warren's recital of the autopsy findings and funeral: "The students on the way to Père La Chaise took the horses from the hearse and dragged it themselves to the tomb," epitomizes the heroic role of the doctor and death itself during this early phase of the rise of modern medicine.

Mason Warren meticulously describes the surgical operations he saw: amputations of limbs and of the neck of the uterus, resections of joints, cataract extractions, plastic procedures for rhinoplasty, cleft palate, and facial tumors, the cutting for and crushing of stones in the urinary bladder, etc. Significantly, the pain of the knife or hot cautery applied without anesthesia is rarely mentioned. On the contrary, Mason Warren remarks its absence or slight severity (shock, yes, but "without the least groan or symptom of pain" in a case of uterine surgery). Ten years later, John Collins Warren (with Mason as his assistant) would be the first to perform major surgery under ether anesthesia. Yet, until then, surgeons, if not their patients, accepted pain as not only inevitable but largely unproblematic.

Despite enthusiastic admiration for Paris hospital medicine and its leaders, Mason Warren could be critical of both. His highest praise went to Louis' scientific approach to physical examination and diagnosis and his reform of pathology simply "by numbering cases." But the American believed Paris surgeons had not sufficiently assimilated these advances and that, in this respect, they lagged behind their Anglo-American counterparts, like his father. With enormous clinical resources available for investigation and teaching, the healing art as practiced in the French capital tended to sacrifice therapeutic success to "study the natural history of disease and to perform an operation beautifully and quickly. . ." Mason Warren thought the post-operative mortality for amputations in the Paris hospitals appalling, and he pointedly called in question the method of open wound treatment.

Dupuytren behaved brutally toward ward patients (and students too, including foreigners, had to suffer his moods), though he charmed his private clientele. Lisfranc, as well, was "a very tyrant" on the wards of the Pitié; even the beloved Louis could be, from the viewpoint of an American, "very stern . . . even repulsive," until one got to know him.

Mason Warren's letters are filled with valuable *aperçus:* early statistics on the success of surgical operations (more than one half operated on for cataract recovered vision), how best to study medicine (arrange a private course with a hospital intern), specialization (dangerous in principle, according to the author, but something he took full advantage of in practice), and many more.

As editor Russell Jones notes, Mason Warren has left us by far the best contemporary account by an American of the Paris school. And there were many others. Nonetheless, one will find little here on medicine in a broader context, such as professional and public health concerns, and less on life in Paris in the mid-1830s. A remarkably dedicated young man, Jonathan Mason Warren rose before dawn, but he had little time or, it seems, interest in the usual delights of the great capital. He seldom ventured over to the Right Bank unless it were to take in a clinic on skin diseases at the Hôpital Saint-Louis. Louis' clinic on chest diseases was "rather more interesting," he wrote, than "society."

Russell Jones' long introduction provides an excellent supplement to the letters. His generous notes, index, and overall editing make the correspondence accessible to the general reader and enhance its value as a primary source for the specialist in medical history.

Reviewed by TOBY GELFAND, Ph.D., Program in History of Medicine, Faculty of Health Sciences, University of Ottawa, Canada.

F. KRÄUPL TAYLOR. *The Concepts of Illness, Disease and Morbus.* New York: Cambridge University Press, 1979. ix + 131 pp. $14.95.

If Western medicine is ever visited by a Tocqueville, surely one of the phenomena he will find most reportable is the difficulty our thinkers seemed to have in defining the concepts of disease, illness, and health. Despite repeated analyses over the years a concise and consensual definition of these three concepts continues to elude the diverse groups having reason to be interested in the matter.

Historically disease has been perceived broadly in two ways, the ontological and the physiological. Ontologists viewed disease as a real entity having an existence of its own apart from the creatures it might morbidly derange. For the physiologists disease was an abstraction, which became a reality only as it involved an individual patient in a process through time.

The concept of health presents a unique problem. The idea of health as a spectrum of wellness is a useful construct, but limited in medical practice. The spectrum of disease has a definite physiological end point, death. No such terminus exists for health. We speak of good health, even superb health, but there are no positive clinical indicators for this state, and indeed no useful vocabulary.

In this latest contribution to the immense literature on the subject, Taylor is less interested in health than disease and illness. The earlier chapters sketch the evolution of "ontological" and "reactive" conceptions of disease as championed respectively by Sydenham and Virchow. The remainder of the book leans heavily on logical and taxonomical analyses as preparation for the introduction of what Taylor sees as his principal contribution, the concept of *morbus*.

The usefulness of distinguishing between disease and illness has been advocated recently by a number of clinicians. A. R. Feinstein in *Clinical Judgement* (Williams and Wilkins, 1967) saw the important variables as disease and host, illness (the interaction between the two) then producing the signs and symptoms important to the clinician. For Taylor this scheme is insufficient in that it "seems to imply that the pathological data composing disease are not interactions."

Taylor would remedy Feinstein's deficiency with the term *morbus*, a "particular form of morbidity" which denotes either or both of the illness and disease components of a particular class of patients depending on the stage the "pathological processes have reached or according to our ignorance of the disease behind a manifest clinical illness." Clinicians, or at least the better among them, already think in terms of Taylor's synthesis, although they might have trouble expressing the thought processes involved. The asymptomatic individual who is found inadvertently to have a blood pressure of 175/100 is considered diseased but not ill. The cardiac neurotic is perceived as ill but not diseased. Certain manifestations of the patient's condition will be perceived, however vaguely, as aspects of the interaction between disease and illness. *Morbus* is proposed by Taylor as a word to clarify this concept for clinicians and others interested in the problem. For historians *morbus* is a happy choice. It has a venerable tradition and is not otherwise occupied at the moment. In truth any of a number of words would suffice, *condition* or *disorder* for example. All that is needed is an understanding of what is meant and a consensus in usage.

The matter may not be left without mention of the problem Feinstein sees as paramount to the clinician, namely that clinical data have no taxonomy whatever. In his words, "There currently exists no standard method, logic, order, system, structure, or rational procedure for classifying the clinical data of human illness. The clinician can do nothing specific with his clinical data except convert them, by an obliterating translation, into the diagnostic categories of the nomenclature of pathology," (pp. 124-125). What is true of Feinstein's illness is equally true of Taylor's *morbi*. And until Feinstein's problem is resolved, Taylor's synthesis, by clinicians at least, will probably be ignored simply because it will not be perceived as very helpful. For those interested in intellectual history, on the other hand, Taylor's analysis is a rigorous and useful exercise in understanding why the concepts of illness, health, and disease remain so elusive.

Reviewed by ROBERT P. HUDSON, M.D. Department of History and Philosophy of Medicine, University of Kansas Medical Center, Kansas City, Kansas.

KENNETH DEWHURST AND NIGEL REEVES, *Friedrich Schiller: Medicine, Psychology and Literature*. Berkeley: University of California Press, 1979. xii + 413 pp. Ill. $22.50.

Dr. Dewhurst, psychiatrist and medical historian known for his seventeenth-century studies of Sydenham and Locke, joined together with Nigel Reeves, professor of German at the University of Surrey, to bring us a well-focused transdisciplinary study of Germany's famous poet and dramatist Friedrich von Schiller (1759-1805). The authors restricted their study to Schiller's early medical and psychological writings, arguing very convincingly that these works reflect formative influences central to the writer's subsequent literary production, a fact largely overlooked by those who study modern German literature.

The book is divided into four parts. The first one provides a biography of Schiller primarily detailing his activities during childhood, the study of medicine (1775-1780), and medical practice as a regimental physician (1780-1782). The second part analyzes the theoretical background of Schiller's medical and psychological ideas, followed by new translations of the poet's writings related to these fields. A final section on literature, philosophy, and aesthetics traces the significance of young Schiller's ideas for his later literary career. Each part is divided into a series of separate chapters provided with numerous footnotes. An extensive bibliography of primary and secondary sources is appended.

Historians of medicine will be grateful for the authors' detailed reconstruction of Schiller's medical studies at the Medical Academy in Stuttgart under the watchful eyes of Karl Eugen, the despot ruling the Duchy of Wuerttemberg. At the very time of comprehensive medical curricula and clinical training at the University of Edinburgh, Schiller and eight other students embarked on a largely theoretical course of instruction given mostly by young and inexperienced professors. As extracted from several primary sources, conditions in Wuerttemberg mirrored the situation in Wuerzburg so masterfully described in his autobiography by the outspoken physician Melchior Weikard (1742-1803), and attesting to the backwardness of contemporary German medicine.

The chapter dealing with eighteenth-century medical theories in Wuerttemberg attempts to clarify a most confusing panorama of speculation. Here the authors summarize the ideas of various medical systematists including Hermann Boerhaave, Friedrich Hoffmann, Georg Stahl, Albrecht von Haller, and William Cullen. Their conflicting explanations are presented but not related to the actual practice of medicine which a contemporary critic, the physician Christian G. Gruner (1744-1815) called a perplexing administration of the old remedies in the name of experience and observation. In fact, another famous contemporary poet, Johann W. von Goethe, considered medical experience a catchword harboring a great variety of meanings, from sheepish acceptance of so-called pathological conclusions to outlandish claims made by quacks and mystics. What remains largely unexplained in this chapter is the fact that the budding physician Schiller and most of his German colleagues of the period adjusted their theories to fit clinical observations and well-established healing practices. Instead of imposing on the sick new treatments logically deduced from the plethora of reigning medical systems, practitioners stuck to bedside experience and customary antiphlogistic strategies.

Among the medical and psychological writings translated for this book are fragments of Schiller's 1779 dissertation—rejected by Duke Karl Eugen—entitled "Philosophy of Physiology," followed by essays on the differences between inflammatory and putrid fevers, the connection between the animal and spiritual nature of man, reports on the melancholy of a classmate, J. F. Grammond, as well as a few medical letters and the only surviving prescription. All documents have been carefully translated and furnished with an editorial introduction and final commentary.

Both authors should be congratulated for a most successful work of interest to historians and literary critics. Increased specialization in all fields will undoubtedly continue to compel scholars towards interdisciplinary cooperation. Historians of the biomedical sciences should likewise ponder the desirability of teamwork in future research activities.

Reviewed by GUENTER B. RISSE, M.D., Ph.D., Department of the History of Medicine, University of Wisconsin Center for Health Sciences, Madison, Wis.

EUCHARIUS RÖSSLIN THE YOUNGER. *On Minerals and Mineral Products.* Chapters on Minerals from his "Kreutterbůch." Critical Text, English Translation, and Commentary by Johanna Schwind Belkin and Earle Radcliffe Caley. Berlin-New York: Walter de Gruyter, 1978 (Ars Medica, IV, Abt., Bd. 1). xxxvii + 418 pp. Ill. D.M. 240.

The editors are to be complimented for constructing a useful handbook of medieval mineralogy from some unpromising material derived from the little-regarded *Kreutterbůch* of Eucharius Rosslin the Younger. Rösslin's *Kreutterbůch,* both in the original 1533 edition, and in its enlarged 1535 form, tends to be regarded as a mechanical compilation, hastily produced by a Frankfurt publisher to compete with Brunfel's classic *Herbal,* first issued in Strassburg in 1530. Nothing the editors write convinces the reader that Rösslin had any first-hand expertise or original thoughts to offer on any aspect of the subject matter of his book.

In urging its value in these terms the editors miss the real historical interest of Rösslin's activity. His work was essentially a compilation from two fifteenth-century collections of materia medica, with a section of more recent material derived from Brunschwig. As a commercial product designed for the layman, Rösslin's work enjoyed short-term popularity. This edition of the substantial section on minerals from the *Kreutterbůch* usefully demonstrates the degree to which minerals were continuously in use in western medicine before the advent of Paracelsianism. The notes and commentary constitute a compendious synopsis of knowledge and lore concerning a wide range of natural substances.

The present volume is furnished with the fullest apparatus, ranging from a parallel German/English text to a bibliography of some 30 pages. The introduction reminds us that Eucharius Rösslin the Younger (d.1548?) is not to be conflated with Eucharius Rösslin the Elder (d.1526), the latter being known as author of the *Rosengarten* (1513) the pioneer vernacular work on midwifery. Both Rösslins were town physicians at Frankfurt am Main. The editors supply some useful documents concerning the appointment and terms of service of town physicians in the sixteenth century.

Reviewed by CHARLES WEBSTER, M.A., D.Sc., Wellcome Unit for the History of Medicine, University of Oxford, England.

THE BULLETIN RECENTLY RECEIVED*

Boletin de la Sociedad Mexicana de Historia y Filosofia de la Medicina. (Vol. 4, Nos. 26, 27, 28, 29, 1979). Mexico: Sociedad Mexicana de Historia y Filosofía de la Medicina, 1979.

Léon Chertok and Raymond De Saussure. *The Therapeutic Revolution: From Mesmer to Freud.* Translated from the French by R. H. Ahrenfeldt. New York: Brunner/Mazel, Inc., 1979. vii + 226 pp. $17.50.

David Cohen. *J. B. Watson, the Founder of Behaviorism: A Biography.* London-Boston: Routledge and Kegan Paul, 1979. vi + 297 pp. $20.00

Thomas E. Cone, Jr., *History of American Pediatrics.* Boston: Little, Brown and Co., 1980. xiv + 278 pp. Ill. $18.95.

Francesco Cordasco and David N. Alloway (Editors). *Medical Education in the United States: A Guide to Information Sources.* Detroit: Gale Research Co., 1980. (Volume 8 in the Education Information Guide Series). xx + 393 pp. $28.00.

John Cule. *Wales and Medicine: A source list for printed books and papers showing the history of medicine in relation to Wales and Welshmen.* Aberystwyth, Wales: National Library of Wales, 1980. xvii + 229 pp. £7.50 (cloth); £4 (paperbound).

Michael Durey. *The Return of the Plague: British Society and the Cholera 1831-2.* Atlantic Highlands, NJ: Humanities Press, 1980. 269 pp. $37.50.

Charlotte Erichsen-Brown. *Use of Plants for the Past 500 Years.* Aurora, Ont. Canada: Breezy Creeks Press, 1979. xx + 510 pp. Ill.

Hans-Heinz Eulner and Hermann Hoepke (Editors). *Der Briefwechsel zwischen Rudolph Wagner und Jacob Henle 1838-1862.* Göttingen: Vandenhoeck and Ruprecht, 1979. 115 pp. Ill. DM 22.

Judith Feder, John Holahan, Theodore Marmor (Editors). *National Health Insurance: Conflicting Goals and Policy Choices.* Washington, D.C.: The Urban Institute, 1980. xxi + 721 pp. $25.00 (cloth); $12.50 (paperbound).

Robert Forster and Orest Ranum (Editors). *Medicine and Society in France.* Selections from the *Annales, Economies, Sociétés, Civilisations.* Vol. 6. Translated by Elborg Forster and Patricia M. Ranum. Baltimore and London: The Johns Hopkins University Press, 1980. ix + 176 pp. $15.00 (cloth); $5.95 (paperbound).

Daniel M. Fox. *Economists and Health Care: From Reform to Relativism.* New York: Prodist, 1979. viii + 103 pp. $7.95.

Garrett Hardin. *Promethean Ethics: Living with Death, Competition, and Triage.* Seattle: University of Washington Press, 1980. vii + 82 pp. $7.95.

Frank Honigsbaum. *The Division in British Medicine: A History of the Separation*

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of General Practice from Hospital Care 1911-1968. New York: St. Martin's Press, 1980. xvi + 445 pp. $27.50.

Godwin Jeschal. *Politik und Wissenschaft deutscher Ärzte im Ersten Weltkrieg: Eine Untersuchung anhand der Fachund Standespresse und der Protokolle des Reichstags*. Hannover, Germany: Horst Wellm Verlag Pattensen, 1977. (Wurzburger medizinhistorische Forschungen, Band 13). 169 pp.

Jim Mason and Peter Singer. *Animal Factories: The mass production of animals for food and how it affects the lives of consumers, farmers, and the animals themselves*. New York: Crown Publishers, Inc., 1980. xiv + 174 pp. Ill. $10.95.

Metamedicine: An International Journal for Philosophy and Methodology of Medicine. (Vol. 1, No. 1; February, 1980). Dordrecht, Holland-Boston: D. Reidel Publishing Company, 1980. 132 pp. $68.00 (institutions); $25.00 (individual).

José María Lopez Piñero, Francesc Bujosa, Maria-Luz Terrada. *Clásicos Españoles de la Anatomía Patológica Anteriores a Cajal: Spanish Classics on Pathology before Cajal*. Valencia, Spain: Cátedra e Instituto de Historia de la Medicina, 1979. (Cuadernos Valencianos de Historia de la Medicina y de la Ciencia XXI, Series B (Textos Clásicos)). xv + 254 pp. Ill.

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Catherine Roberts. *Science, Animals, and Evolution: Reflections on Some Unrealized Potentials of Biology and Medicine*. Westport, Conn.: Greenwood Press, 1980. (Contributions in Philosophy, No. 14). xv + 221 pp. $18.95.

Leon Z. Saunders. *Veterinary Pathology in Russia, 1860-1930*. Ithaca-London: Cornell University Press, 1980. xxi + 327 pp. Ill. $25.00.

Germàn Somolinos d'Ardois. *Capitulos de Historia Medica Mexicana: I—Medicina en las Culturas Mesoamericanas Anteriores a la Conquista, II—El Fenomeno de Fusion Cultural y Su Trascendencia Medica, III—Relacion Alfabetica de los Profesionistas en Territorio Mexicano* (1521-1618). Mexico: Sociedad Mexicana de Historia y Filosofía de la Medicina, 1980.

Venezia e la Peste, 1348/1797. Comune di Venezia, Assessorato alla Cultura e Belle Arti. Venezia: Marsilio Editori, 1979. 380 pp. Ill.

Vogel, Morris J. *The Invention of the Modern Hospital: Boston, 1870-1930*. Chicago: The University of Chicago Press, 1980. ix + 170 pp. $15.50.

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JOURNAL OF A NEUROSURGEON *by* **Edgar A. Kahn,** *Univ. of Michigan Medical Center, Ann Arbor. Foreword by* **Bronson S. Ray.** The author provides readers with a vivid narrative of his experiences as a neurosurgeon and of the development of his specialty as he witnessed it over several decades. Descriptions of neurosurgery in 1930 as compared to today's complex, technical practice open the book and are followed by details of his training, teachers, and colleagues; his work in England and Europe during World War II; and his experiences as a neurosurgical professor and physician from the postwar period to the present. Case histories complement the text. *'72, 182 pp., 7 il., $11.25*

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ABRAHAM FLEXNER'S UNPUBLISHED REPORT: FOUNDATIONS AND MEDICAL EDUCATION, 1909-1928*

DANIEL M. FOX

In the early twentieth century, medicine became, in Richard Shryock's phrase, the "chief beneficiary of public giving." The most influential gifts were made by foundations. Between 1903 and 1934, nine of the largest foundations "granted medical institutions about 154 million dollars," nearly half of their total gifts.[1] During these years foundations developed from loosely organized extensions of a benefactor's will to tightly managed corporations which were dominated by professional staff. The philanthropic managers who served as intermediaries between foundations and medical institutions in this period supported innovations in medical science, practice and education which resonate throughout this century.

As an employee of first the Carnegie and then the Rockefeller philanthropies, Abraham Flexner participated in significant events in medical education between 1909 and 1928. His name has become an adjective, "flexnerian," signifying strong convictions about the role of basic science in the curricula of medical schools. Most historians and medical educators accept Flexner as he projected himself in his numerous publications: an aggressive, articulate, uncompromising intellectual who was deeply involved in activities of considerable importance.[2]

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* Revised version of a paper presented at the 52nd annual meeting of the American Association for the History of Medicine, Pittsburgh, Pennsylvania, 4 May, 1979.

[1] Richard H. Shryock, *The Unique Influence of the Johns Hopkins University on American Medicine* (Copenhagen: Ejnar Munksgaard, 1953), p. 37.

[2] Flexner (1866-1959) was raised in poverty by immigrant Jewish parents, studied at the Johns Hopkins University (A.B. 1886), and organized a private school in Louisville, Kentucky. After graduate study at Harvard (A.M. 1906) and travel in Europe, he was a staff member of the Carnegie Foundation from 1908 to 1912, and then from 1913 to 1925, Assistant Secretary and Secretary of the General Education Board. In 1928, he left the Rockefeller philanthropies to organize the Institute for Advanced Study.

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This view of Flexner is incomplete. Flexner was unusually sensitive to the fragmentation of influence and authority in universities and foundations. He was ambivalent about bureaucracy; accepting and resisting anonymity and the uniform application of policies and procedures. His ambivalence made him an unusually articulate witness to the development of the complex organizational arrangements which have characterized medical education, science, philanthropy, and government in this century.

Flexner's role in the evolution of philanthropy can be documented from unpublished correspondence. His letters and memoranda, taken together, are in a sense a report: a survey and analysis of the way in which the public purpose of medical science and education was asserted in the early decades of this century.

The foundations created by John D. Rockefeller and Andrew Carnegie were innovations in philanthropy. Unlike most American millionaires of the time, whose gifts were local and personalized, Carnegie and Rockefeller operated internationally and permitted the boards and staff of their foundations to make major decisions. The organizational structure and managerial style of the Rockefeller and Carnegie charities derived from both Protestant missionary work and the oil and steel trusts. Unlike Carnegie, however, Rockefeller's foundations were publicly scorned, particularly after 1910, by journalists and public officials.[3]

The Carnegie and Rockefeller philanthropies also had much in common with other American charity. Most of the exceptionally generous millionaires of the period were, like Carnegie and Rockefeller, self-made men. Early in this century, moreover, the wealthiest philanthropists focused their gifts on education, health and welfare rather than on religion. Similarly, many wealthy benefactors increased their support for research. Throughout the nation personalized giving declined as the number of foundations and their employees grew.[4]

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[3] Major secondary sources for the history of foundations in general and the Carnegie and Rockefeller foundations in particular include· Robert Bremner, *American Philanthropy* (Chicago: University of Chicago Press, 1960), pp. 118-119; Merle Curti, Judith Green and Roderick Nash, "Anatomy of giving: millionaires in the late 19th century," *Amer. Quart.*, 1963: *15:* 424; Merle Curti and Roderick Nash, *Philanthropy in the Shaping of American Higher Education* (New Brunswick: Rutgers University Press, 1965), pp. 213-215; Alfred D. Chandler, Jr., *The Visible Hand* (Cambridge: Belknap Press of Harvard University Press, 1977), pp. 419, 424, Allan Nevins, *John D Rockefeller· The Heroic Age of American Enterprise*, 2 vols. (New York: Charles Scribner's Sons, 1940), pp. 21, 642; Joseph Frazier Wall, *Andrew Carnegie* (New York: Oxford University Press, 1970), pp. 833, 883.

[4] Curti, Green and Nash, "Anatomy," pp 425, 429; *cf.* Warren Weaver, *U.S. Philanthropic Foundations* (New York: Harper and Row, 1967), pp. 34-36. Leonard P. Ayers, *Seven Great Foundations* (New

In foundations as in other business organizations, salaried managers—what Alfred Chandler called the "visible hand"—gradually replaced entrepreneurs. Like the companies in the Standard Oil Trust, the Rockefeller foundations were separate organizations which were linked by overlapping boards. Both the Trust and the foundations used new administrative methods devised by full-time senior managers. For example, the managers of the foundations, like those of the Trust, made decisions through consultation and the evolution of a consensus. However, the separation of board and staff responsibilities occurred earlier in the foundations than in the Trust. As a result, the salaried managers of the Rockefeller foundations dominated American philanthropy at a time when most men with similar training, mainly as teachers and ministers, had considerably less power.[5]

The dominance of salaried managers in the Rockefeller philanthropies in the decade after 1910 was, to some extent, a response to public antagonism against both the Rockefeller Trust and John D. Rockefeller. Between 1889 and 1907, thirty-four foundations had secured national charters of incorporation from Congress, including Rockefeller's General Education Board in 1903. A bill to incorporate the Rockefeller Foundation, introduced in the United States Senate in 1910, evoked strong protest. The Attorney General, George W. Wickersham denounced the bill as "an indefinite scheme entirely inconsistent with the public interest." President William Howard Taft deplored what he called the effort "to incorporate Mr. John D. Rockefeller."[6] In 1910, a Federal Circuit Court ordered the Oil Trust to be dissolved. Standard Oil appealed this decision to the United States Supreme Court just five days before the bill to charter the Rockefeller Foundation was introduced in the Senate. Hostility to Rockefeller and his philanthropy went beyond suspicion of the Trust. In 1914, for example, Southern Congressmen, suspicious of the activities of the General Education Board among Blacks and poor white farmers, pro-

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York: Russell Sage Foundation, 1911) pp. 11-12, distinguished foundations from other philanthropy of the period: "There are at least four reasons why these national benefactions are in a class by themselves. First, the unit by which they measure their bounty is millions of dollars . . . In the second place, in every case the donor has made the gift totally without religious or ecclesiastical conditions. The third noteworthy condition is that the scope of each foundation is national or worldwide rather than sectional or local. The fourth distinguishing characteristic is that the conditions governing the administration of the trust funds are in each case general in character and provision is made for future modifications as conditions change."

[5] Chandler, *Visible Hand*, pp. 419-424, 455, 484.

[6] Raymond B. Fosdick, *The Story of the Rockefeller Foundation* (New York: Harper and Brothers, 1952), pp. 16-20; Bremner, *American Philanthropy*, pp. 118-119.

hibited grants from foundations to the United States Department of Agriculture.[7]

The most effective political attack on the Rockefeller philanthropies was mounted in 1915 as a result of their identification with industrial violence. A strike at the Colorado Coal and Fuel Corporation, in which John D. Rockefeller was a major stockholder, led to the Ludlow Massacre in April, 1914. Miners and their families were shot or burned to death by State Militia acting as strikebreakers. Forty-five people died in a ten-day period, fourteen on the night of April 20. During the strike, Rockefeller publicly supported Colorado Fuel. He hired a public relations expert, Ivy Lee, to conduct a nationwide pro-management campaign. The Rockefeller Foundation commissioned W. L. McKenzie King, a future Prime Minister of Canada, to develop a program of studies and demonstrations in industrial relations—a euphemism for company-sponsored alternatives to unionization.[8]

Rockefeller and his foundations[9] were bitterly attacked in 1915 by the United States Industrial Commission, an investigating group appointed by President Woodrow Wilson. John D. Rockefeller, Sr. and most of the trustees of the Rockefeller Foundation were called as witnesses in public hearings. The Commission heard evidence that John D. Rockefeller had personally intervened against the Colorado strikers and had lied in public about his role. Moreover, the Commission charged, the Foundation, through King, was strikebreaking in Colorado. In its report the Commission attacked the Foundation for promoting Rockefeller's business interests.[10]

The furor created by the Commission made the Rockefeller philanthropies cautious. Raymond Fosdick, a young staff member at the time, recalled in 1952, that in response to attack, the Foundation and the General Education Board limited their gifts to a "narrow range of noncontroversial subjects, notably public health, medicine and agriculture." The founder and his son, John D. Rockefeller, Jr., broadened membership on the Foundation Board of Trustees, which had only two members who were not on a Rockefeller payroll when the Industrial Commission conducted its hearings. The Board increasingly accepted the authority of the professional staff.[11]

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[7] Nevins, *Rockefeller*, p. 642; Raymond B. Fosdick, *Adventure in Giving* (New York: Harper and Row, 1962), p. 59

[8] Graham Adams, *The Age of Industrial Violence* (New York: Columbia University Press, 1966), pp. 146-147.

[9] The General Education Board and the Rockefeller Foundation operated from the same building, shared staff and had overlapping board members. The general public and the philanthropic community often confused the two organizations. In this paper, the phrase Rockefeller foundations refers to both the Board and the Foundation.

[10] Adams, *Industrial Violence*, pp. 164-167; *cf.* Fosdick, *Rockefeller Foundation*, p. 26, and Marion R. Fremont-Smith, *Foundations and Government* (New York: Russell Sage Foundation, 1965), pp. 51-52.

A number of innovations in philanthropic practice were urged by members of the staff in response to public criticism. In 1913, Jerome D. Greene, the executive secretary of the Rockefeller Foundation, acknowledged its "accountability" and advocated a program of "public scrutiny, criticism and publicity."[12] An annual report was printed for the first time in 1914. The same year, the General Education Board, which issued no public reports during its first twelve years, published a summary of its activities written anonymously by Abraham Flexner. Not everyone on the staff believed that publicity was desirable. Wallace Buttrick, president of the General Education Board, for example, resisted the idea of annual reports, but was overruled by John D. Rockefeller, Jr.[13]

More importantly, public attacks on the foundations made the staff extremely sensitive to criticism. Staff members were careful to avoid the appearance of dictating to institutions and individuals seeking funds. Elaborate rituals were developed to create the illusion that new ideas were generated entirely by applicants without staff collaboration. Studies conducted by the foundations were routinely described as invited by public officials or voluntary associations, no matter what their actual origin. The foundations increasingly claimed to award grants on the unassailable basis of excellence and rarely discussed such implicit criteria as an applicant's conformity with an overall philanthropic policy or geographic location.[14] These conventions of philanthropic life were at variance with the behavior of staff and prospective grantees. As a result of the difference between avowed and actual behavior, printed accounts of the activities of the foundations are often in conflict with the unpublished correspondence in the Rockefeller Archives.

The official histories of the Rockefeller philanthropies describe Abraham Flexner as a creative staff member who, alone among the foundation's managers, was often directive, even abrasive, in his relations with individuals and institutions.[15] But Flexner was merely less skillful than his colleagues at dissembling his feelings. There is ample evidence that most members of the Board and professional staff were aggressive both within and without the foundations.

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[11] Fosdick, *Rockefeller Foundation*, pp. 27, 29; *cf.* Nevins, *Rockefeller*, pp. 661-662, and Ayers, *Seven Great Foundations*, p. 50. From its inception, the General Education Board had more broadly based membership than the board of directors of the Rockefeller Foundation.

[12] Fosdick, *Rockefeller Foundation*, p. 290.

[13] [Abraham Flexner], *The General Education Board. An Account of its Activities, 1902-1914* (New York: General Education Board, 1915); *cf.* Fosdick, *Adventure*, p. 321.

[14] Fosdick, *Rockefeller Foundation*, pp. 101-111.

To the end of his life, Flexner preferred to be regarded as a humble servant of power in an age of heroes. He saw himself as an informed critic of education, an American counterpart of Matthew Arnold. In his opinion, he helped to institutionalize the ideas of Charles William Eliot of Harvard and Daniel Coit Gilman and William H. Welch of the Johns Hopkins University. His philanthropic employers were also heroes: Henry Pritchett and Carnegie; Wallace Buttrick and the Rockefellers. Unlike his brother Simon, who was a student of Welch, a research pathologist, the Director of the Rockefeller Institute of Medical Research and a member of the Boards of the foundations, Abraham projected himself as merely an "unfettered lay mind."[16]

Flexner was, however, unlike his heroes. Arnold's achievement as a poet and essayist was independent of his activities in public education. Eliot, Gilman, Welch, Pritchett, Buttrick and Simon Flexner created or dominated organizations. Abraham Flexner's influence and reputation, in contrast, were based on his intellectual activities in organizations he served as a subordinate. His heroic self-image was at variance with the facts of his life. Abraham Flexner was a hero only by identification. His verbal aggressiveness, so dismaying to his colleagues, may have expressed resistance to the routine and forced anonymity of his role as an intellectual servant of other men's power.

Flexner was more complicated than his self-image. He could be charming, even obsequious, as well as impatient, aggressively outspoken, and bitterly critical of colleagues. Although he mastered the technique of administrative politics, he often made himself "virtually inaccessible." He was capable of both fierce honesty and, when under pressure, dissimulation. A worshipper of heroes, a self-described humble servant, Flexner frequently resisted authority, disagreed with such important men as Welch and Eliot, and was disappointed at being passed over for the Presidency of the General Education Board when Buttrick retired.[17]

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[15] Fosdick, *Adventure*, pp. 116, 170, 226-227; *cf. The Reminiscences of Dr Alan Gregg*, Oral History Research Office, Columbia University, 1958, pp. 138-140; and also Wilder Penfield, *The Difficult Art of Giving* (Boston· Little, Brown and Company, 1967).

[16] Abraham Flexner, *I Remember* (New York: Simon and Schuster, 1940), pp 89, 111 and *passim*.

[17] *The Reminiscences of Dr. Alan Gregg*, p. 138. Flexner organized and headed an important organization, the Institute for Advanced Study, when he was over sixty years of age By then his reputation and personal style were fully formed.

Contemporaries were often critical of Flexner's behavior. Welch resisted his "impatience." Eliot accused Abraham and Simon Flexner of prejudice against Harvard.[18] Raymond Fosdick recalled his "formidable intransigence."[19] Yet Flexner needed to describe the foundation world as a "family" which managed nevertheless to sponsor "great undertakings."[20] In contrast, Frederick Gates, John D. Rockefeller, Jr.'s principal philanthropic adviser, angered by a Flexner scheme to reverse an important foundation policy, attacked him as a "bureaucratic officer . . . usurping the power of the Board."[21]

These critical contemporaries were also sophisticated actors in the closed politics of bureaucracies and universities. They consciously used their gentility and self-control to compete with the more volatile, less secure Flexner in struggles for resources and influence. Welch, for example, called Flexner impatient because he tried to persuade Frederick Mall to criticize Welch's timetable for achieving full time in the clinical departments.[22] When Eliot attacked Flexner in a letter to Jerome Greene in 1916 for being "opposed on principle to any aid being given by the Rockefeller Trusts to the Harvard Medical School," he was careful to note that he was quoting A. Lawrence Lowell's opinion. This letter served at least two purposes. It reminded the Foundation that its preference for the Johns Hopkins would not go unchallenged. Moreover, Eliot offered to mediate between the Foundation and his successor as President of Harvard. Two years earlier Lowell had embarrassed himself with both the Foundation and his medical faculty by assuring Flexner that Harvard would be receptive to the full-time plan for compensating faculty in clinical disciplines.[23] Similarly, Gates attacked Flexner after losing a bitter dispute, fought in memoranda and orally among the members of the Board, about the appropriateness of grants from the foundations to public universities.

There is no direct evidence of anti-semitism in either the attacks on Flexner or his autobiographical accounts of them. His colleagues were men of strong self-discipline who wanted to be perceived as highly virtuous. Flexner believed he was fully assimilated. He told Milton Winternitz of Yale, sometime in the early 1920s, that ". . . I am a Jew myself and have been for years making my way among Christians and working with them . . . prejudice need not be stirred."[24] Writing to his daughter, a sophomore at Bryn Mawr in 1917, he stated his faith in assimilation more strongly: "Social distinctions and class mores are irrelevant and have no significance as applied to American conditions."[25]

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[18] Charles W. Eliot to Jerome D. Greene, June 9, 1916, General Education Board Papers, IV, Box 613, 1107a, Rockefeller Foundation Archives, Tarrytown, New York.

[19] Fosdick, *Adventure*, pp. 163, 167, 170, 321.

[20] Flexner, *I Remember*, pp. 183, 214, 308.

[21] Fosdick, *Rockefeller Foundation*, pp. 98-99.

[22] Flexner, *I Remember*, p. 183.

[23] Lowell's optimism is evident in various letters to the General Education Board. The letters are located in a file labelled "Harvard, 1913-1914" in GEB Papers IV, Box 413, 1107a; *cf.* Fosdick, *Adventure*, pp. 163-164, 167.

Abraham Flexner, raised in Jewish immigrant poverty in a border state, was not likely to be naive about the virulence of anti-semitism. But his rapid upward mobility, which both created and reinforced his heroic self-image, seemed to him an argument against religious prejudice. Further, his brother Simon's achievements in the academic community and in the management of science, arenas in which there was overt anti-semitism, may have reinforced his belief in the boundless opportunity for talent to rise where Rockefeller money flowed. In addition, Buttrick was uncommonly forthcoming about the warmth of his feelings for Abraham Flexner. Much could be forgiven in an organization in which the president wrote, "You are very dear to me, my friend . . ."[26]

Nevertheless, Flexner was what Hannah Arendt described as an "exceptional Jew." In his travels in the United States and Europe, he probably was among the "Jews who heard the strange compliment that they were exceptions." Aspects of Flexner's career, in particular the skills for which he was both praised and criticized by contemporaries, are similar to what Arendt described as the adaptation of many Western European Jewish intellectuals to the "unreasonable demands of society, to be strange and exciting, to develop a certain immediacy of self-expression and presentation which were originally the attributes of the actor and the virtuoso, people whom society has always half denied and half admired."[27]

Anti-semitism in the United States became increasingly intense in the early twentieth century. By 1900, it had "become so extensive that even those who were sincerely dedicated to correcting the ills of society were susceptible to be overcome by its debilitating presence.''[28] Flexner surely knew that, in 1910, ''four Jewish professors were dismissed from the Medical Department of Washington University under conditions that suggested prejudice.''[29] In 1915, he must have known that Jacques Loeb of the Rockefeller Institute was denied membership in the Century Club of New York because he was Jewish, and that J. McKeen Cattell of Columbia resigned from the Club in protest.[30] The adoption of stringent quotas for the admission of Jews to medical schools in the 1920s could not have escaped his attention, though there is no evidence that he commented on it.

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[24] Typescript reminiscences of Dr. Milton C Winternitz, March 23, 1950, Abraham Flexner Papers, Box 15, Library of Congress, Washington D.C. Flexner's comment to Winternitz appears to have been directed at a specific incident of anti-semitism at Yale. I believe the comment can, however, be taken as a general statement of Flexner's attitude on the subject of his Jewishness.

[25] Abraham Flexner to Jeanne Flexner, March 14, 1919, Flexner Papers, Box 2.

[26] Flexner, *I Remember*, p. 225.

[27] Hannah Arendt, *The Origins of Totalitarianism* (New York: Meridian Books, 1958), pp. 56, 67.

Although Flexner seems to have preferred to ignore anti-semitism, some of his aggressiveness, his delight in intellectual and bureaucratic combat, may have been a way to test his acceptance by Christian colleagues or a reaction to the stress of worrying about what was not said directly to him. His relative silence on the subject, when he was forthcoming on so many other matters, suggests that he was sensitive about it.

The Rockefeller Foundations stimulated a dramatic increase in the resources of leading American medical schools in the years between Abraham Flexner's *Report on Medical Education,* in 1910, and his book *Medical Education: A Comparative Study,* in 1925. Writing in retirement, Flexner estimated that between 1917 and 1928 alone, the combination of Rockefeller grants and institutional matching funds added $600 million to the budgets of schools of medicine in the United States. The story of these gifts, for faculty salaries, research, and physical facilities, has been told in detail, notably by Flexner himself and by Raymond Fosdick.

In their narratives, Flexner and Fosdick present a mythical view of the process by which foundation policy was developed and implemented. The central theme of the myth is the subordination of foundations to grantees. According to Flexner and Fosdick, the only controversies between the General Education Board or the Rockefeller Foundation and University officials occurred when members of the foundations' staff were not appropriately subservient. These controversies, they declared, were reduced as policy and experience accumulated. As Fosdick wrote, the "evolving policy of the Rockefeller Foundations" was that "once grants are made to responsible groups or institutions, no degree of control over the operation of the grants should be exercised. . . ."[31] Similarly, Flexner, in his autobiography, asserted that, "We made no effort at the Carnegie Foundation or the General Education Board to manage science or education . . . we appeared to make choices, but, as a matter of fact, they were made for us."[32]

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[28] Michael N. Dobkowski, *The Tarnished Dream: The Basis of American Anti-Semitism* (Westport, Conn.: Greenwood Press, 1979), p. 240.

[29] John Higham, ''Social discrimination against Jews in America, 1830-1930,'' in Abraham Karp, ed., *The Jewish Experience in America,* 5 vols. (Waltham, Mass.: American Jewish Historical Society, 1969), 5: 365.

[30] Carey McWilliams, *A Mask for Privilege. Anti-Semitism in America* (Boston: Little, Brown and Company, 1948), p. 24; *cf* David M. Sable, ''Some American-Jewish Organizational Efforts to Combat Anti-Semitism, 1906-1930,'' Unpublished Dissertation, Yeshiva University, 1964, *passim*

Contrary to these statements, the foundations' policies in fact evolved through controversies in which their staff members were major participants. Abraham Flexner's role in the adoption of the full-time salary plan for clinical faculty by the Johns Hopkins is an example of staff involvement in academic policy and politics. William H. Welch made the initial suggestion of a grant to support the clinical full-time program. Flexner pressed for faster action than Welch was prepared to take.[33]

Flexner was an articulate partisan in the bitter controversy over full time within the Hopkins faculty. In April, 1913, J. Whitridge Williams, Professor of Obstetrics, who was then Dean of the Medical School, described to Flexner the dispute within the faculty about the number of private beds in the Johns Hopkins Hospital that would be assigned to each department under the full-time plan.[34] Flexner replied with an ideological statement about faculty power: "It is a great pity that in a matter which effects the medical school so vitally, the faculty as a whole cannot have a voice."[35] Three months later, Flexner told Williams that he, Welch and their faculty allies were "much too tender on 'clinical men' " who had "already profited enormously by their connection with the Johns Hopkins Medical School and Hospital."[36] When the plan was implemented, early in 1914, Flexner learned about its problems from a network of informants who included the Superintendent of the Hospital and his brother Simon's contacts on the faculty. Two weeks after the full-time plan was initiated, Flexner warned Winford Smith, the Superintendent, that, through an unidentified source, "What appears to be a flagrant case of overcharge has just been brought to my attention."[37] In reply, Smith assured Flexner that "I have had reported so far only two fees that might be characterized as exorbitant."[38]

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[31] Fosdick, *Rockefeller Foundation*, p. 293.

[32] Flexner, *I Remember*, p. 275; *cf* Abraham Flexner, *Funds and Foundations* (New York: Harper and Brothers, 1952), pp. 48, 49, 76-77.

[33] *Ibid.*, p. 183; *cf.* Fosdick, *Adventure*, pp. 154-159.

[34] J Whitridge Williams to Abraham Flexner, April 11, 1913, GEB Papers, IV, Box 589, 1005.

[35] A. Flexner to J. W. Williams, April 16, 1913, *ibid.*

[36] A. Flexner to J. W. Williams, July 15, 1913, *ibid.*

[37] A. Flexner to Winford Smith, March 20, 1914, *ibid.*

During the next three years, as Flexner received frequent reports on the progess of the plan, he became more sympathetic to the complexity of academic medicine. Members of the Johns Hopkins faculty shared their ambivalence about full time with him. William Halsted, the Professor of Surgery at the Johns Hopkins, for example, wrote that, although there were many advantages to full time, he had difficulty retaining surgical staff because the "prospect of large and quickly earned fees is an important motive to become a surgeon."[39]

Although Flexner became more flexible in his views about the full-time plan, his commitment to an aggressive role for foundations remained controversial. Unsuccessful applicants, notably from Harvard, attacked him as the source of a dangerous policy.[40] More importantly, the strategy of offering funds to schools in exchange for a commitment to the full-time plan worried other philanthropic executives, particularly after the attack on foundations' motives by the United States Industrial Commission in 1915. Writing in the *North American Review* shortly after the Commission reported, Henry S. Pritchett, President of the Carnegie Foundation asked "Should the Carnegie Foundation be suppressed?" Pritchett disputed the "vision of a foreign corporation sitting in New York issuing educational edicts. . . ." Foundations did not impose "arbitrary standards." Neither were their executives so foolish as to try to impose their will on universities, particularly those funded by legislatures. Foundations must "achieve their purposes by a slow process." That purpose, in simplest terms, was to improve education in the public interest.[41]

To Pritchett, the subordination of donors to recipients was both a matter of deep conviction and a prudent tactic. Flexner and Buttrick, his close friends, seemed to share his views. But stating a position and implementing it in awarding and administering grants were different matters. In the next several years, attacks increased on the General Education Board's conditional grants, and on Flexner as their most vigorous proponent. Charles William Eliot, a member of the Board, reminded his associates in 1916 after a Harvard application was rejected, that it was Board policy not to interfere "with the domestic management of an institution aided, except as regards its prudential financial management." A year later, another Board member, Anson Phelps Stokes, alluding to the political climate, doubted that "we can psychologically and morally afford—in view of public opinion and our great wealth as a board—to be imposing . . . detailed conditions regarding educational policy in medicine."[42]

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[38] W. Smith to A. Flexner, March 21, 1914, *ibid.*, *cf.* Simon Flexner to A. Flexner, May 5, 1914, *ibid.*

[39] William Halsted to Abraham Flexner, April 11, 1915, *ibid.*, Box 589 contains detailed reports by Johns Hopkins faculty members on the operation of the full-time plan.

[40] Fosdick, *Adventure*, p. 164. However, Flexner had strong support from Buttrick in his advocacy of full time and the Hopkins: eg. Wallace Buttrick to A Flexner, March 9, 1920, GEB Papers, IV, Box 589, 1005.

[41] Henry S. Pritchett, "Should the Carnegie Foundation be suppressed," *North Amer. Rev.*, 1915, *201:* 559, 562.

Late in 1919, almost five years after the General Education Board made commitment to full-time teaching a condition of grants to medical schools, Henry Pritchett decided to act as if he had just heard about the policy. Writing to Wallace Buttrick, Pritchett criticized the Board's contracts with the Johns Hopkins and the University of Chicago because of their rigid conditions. "Binding a university to a fixed policy laid down by the giver of the money seems to me a dangerous thing," he declared. Pritchett made it clear that, four years after the report of the Industrial Commission, he still feared that, "If these contracts were made public . . . it would bring down on all educational foundations, no less than on the universities themselves, severe criticism."[43]

Buttrick's prompt reply was so disingenuous as to raise questions about the purpose of the correspondence. According to Buttrick, the universities themselves requested that their contracts with the Board bind them to the full-time policy. Moreover, the contracts were drawn by the universities' legal advisers.[44] In the third letter in the series, only two weeks after the first, Pritchett repeated his concern that conditional grants would hurt foundations.[45] After a year of silence on the subject, Pritchett raised it in an informal letter to Flexner.[46] Again Flexner, like Buttrick, chose to tell something less than the truth to his old friend: "We have no program to which we are adhering."[47] Flexner neglected to tell Pritchett that the Johns Hopkins contract had been revised to emphasize the primary responsibility of the university rather than the foundation, or that he had recently told the Hopkins that despite the revised contract, "our interest and attitude are now precisely what they were."[48]

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[42] Fosdick, *Adventure*, p. 164.

[43] Henry S. Pritchett to Wallace Buttrick, November 11, 1919, GEB Papers, IV, Box 589, 1005.

[44] Wallace Buttrick to H. S. Pritchett, November 21, 1919, *ibid.*

[45] H. S. Pritchett to W. Buttrick, November 25, 1919, *ibid.*

[46] H. S. Pritchett to A. Flexner, December 23, 1920, Flexner Papers, Box 17.

[47] A. Flexner to H. S. Pritchett, December 27, 1920, *ibid.*

[48] Fosdick, *Adventure*, p. 165.

Before these exchanges, Pritchett and Flexner had warmly debated whether the full-time plan was effective, not whether it was prudent. In April, 1918, Pritchett, declaring that "I become each year a little more distrustful of educational specifics," doubted that "so simple a remedy would make an institution what it ought to be. . . ." Just six months before questioning the propriety of binding contracts, he warned Flexner that the problems of medical education were too complicated to be resolved by a single reform. "When medicine becomes academic," he observed, "it will have weaknesses quite as serious" as it had "under the practitioner regime."[49]

The managers of the Carnegie and the Rockefeller philanthropies were engaged in considerably more than studied hypocrisy. Buttrick, Flexner and Pritchett understood very well the need to avoid appearing to dictate to universities. When Pritchett wrote to Buttrick in November, 1919, however, Flexner was completing a confidential memorandum "regarding Mr. Rockefeller's gift to be devoted to the improvement of medical education in the United States." John D. Rockefeller, Sr. proposed to allocate an additional $45,000,000 to medical education. Flexner advocated its use as part of a larger strategy to reduce the number of medical schools in the United States to thirty-one. He even named the schools, public and private, which ought to survive. Although the proposal remained a secret, it is conceivable that one of the Board members who opposed the full-time plan leaked its existence to Buttrick. Buttrick certainly wrote for the record; his letters and his friends' replies differ in tone from their other correspondence.[50]

Whether Buttrick wrote to forestall the expenditure of a large gift to promote full time or to learn more about the Rockefeller group's intentions in order to plan Carnegie strategy is unknown. The dispute does demonstrate that philanthropy had assumed the characteristics of a large business enterprise. Pritchett, Buttrick and Flexner were senior managers of large firms. They shared an interest in a rationally organized market and enjoyed warm relationships which became guarded when major corporate strategy was at issue. When less was at stake than in 1919, they recognized that they had more in common than in conflict and that the actual behavior of organizations differed from their stated purposes. As

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[49] H. S. Pritchett to A Flexner, April 4, 1918 and May 19, 1919, Flexner Papers, Box 17.

[50] Abraham Flexner, "Regarding Mr. Rockefeller's Gift to be Devoted to the Improvement of Medical Education in the United States," GEB Papers, I, 5, Box 702; *cf.* A. Flexner to Frederick J. Gates, September 19, 1922, GEB Papers, Box 717.

Pritchett wrote to Flexner in 1924 "There is . . . the same tendency in the boards of these foundations to become stratified as in any other human organization."[51]

Flexner's fierce advocacy of his views on medical education obscured their change over time. In the years after publication of Carnegie *Bulletin #4* in 1910, he gradually concluded that the improvement of medical education required flexible standards for accreditation, a less rigid curriculum than the one with which he was identified and attention to the distribution as well as to the education of physicians. Both in his lifetime and subsequently, Flexner has appeared to be more rigid than he was. He worked hard to restrain his vigorous opinions. In 1910, for instance, in an early draft of *Bulletin #4* he wrote that the "minimum of adequate medical instruction . . . can be quite precisely defined." He later reversed the meaning of this sentence by adding the word "not" in his own hand to the typescript.[52] Both Pritchett and, later, Buttrick restrained Flexner's verbal aggressiveness. Flexner was an effective foundation executive because he accepted these restraints and frequently criticized himself for what he called, in 1913, "unwisely heated . . . tone and language."[53]

Flexner's commitment to flexible standards for medical education was stimulated by the Rockefeller foundations' efforts to improve education in the South. In 1913, he criticized Arthur Dean Bevan, Director of the AMA Council on Medical Education for "doing a great deal of harm in the South."[54] Bevan and the AMA, by condemning sub-standard Southern medical schools, threatened to deprive the South of institutions which could develop into resources for the region. The most visible work of the General Education Board was in agricultural and educational demonstration programs in the South. Buttrick and Frederick W. Gates, the Board Chairman, were deeply committed to the principle of emulation in the development of Southern institutions. In their view of the South as an underdeveloped region, the standards which mattered were those that measured process, not performance.[55]

The imposition of rigid standards would, moreover, deprive Blacks of opportunities for medical education. The Rockefeller foundations, committed to the development of separate institutions to serve black communities, resisted efforts to close black medical schools. As Flexner told William Welch in 1919, "It is very important to cooperate with the Negro rather than to do things for him."[56] Flexner believed the AMA Council should treat black schools the way it actually treated white schools, "varying its standards according to local and other considerations."[57] Although Flexner suspected the Council of hypocrisy, he courteously advocated the use of relative rather than absolute standards. Defending Meharry Medical College as an "A" school in black medical education, for example, he wrote to Pritchett that " 'A' schools are . . . simply the best schools in their respective sections."[58]

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[51] H. S. Pritchett to A Flexner, October 30, 1924, Flexner Papers, Box 17.

[52] Typescript, Flexner Papers, Box 16.

[53] A. Flexner to H. S. Pritchett, March 26, 1914, Flexner Papers, Box 17.

[54] A. Flexner to H S. Pritchett, December 5, 1913, Flexner Papers, Box 17.

[55] Fosdick, *Adventure*, pp. 42-58; *cf.* Flexner, *General Education Board, passim.*

Flexner applied the concept of relative standards to medical schools in general. When N. P. Colwell of the AMA staff, who had accompanied him on his medical school visits in 1909 and 1910, suggested a new survey in 1919, Flexner argued that the application of appropriate national standards was frustrated by the intense localism of medical politics. "As long as hospitals appoint only local men to staff positions," he asserted, "and the medical schools have to take them, standards of clinical teaching cannot be raised by external censure."[59] Three years later, in an off-the-record talk to the AMA Council on Medical Education, Flexner argued that despite "all the progress we have made . . . in the last fifteen years, medical schools vary more in the United States than they do in any of the European countries." Even among Class A schools there was so much variety that he found it "difficult to formulate to myself what a Class A school really is."[60]

The strategy of regulating education by imposing rigid standards, he told Harvey Cushing in 1921, made "our medical curriculum a monstrosity."[61] The medical curriculum, he declared in a memorandum, was "less and less free," and placed too little responsibility on students. This rigidity was mainly a result of establishing standards to "kill off or improve poor schools." Students became "schoolchildren" and teachers "schoolmarms" because standards were imposed through "bureaucratic administration by persons of inferior scientific and professional training" on faculties, state licensing boards and the AMA Council.[62]

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[56] A. Flexner to William H. Welch, December 26, 1919, GEB Papers, I, 5, Box 702.

[57] A. Flexner to N. P. Colwell, May 29, 1918, *ibid.*

[58] A. Flexner to H. S. Pritchett, April 25, 1921, Flexner Papers, Box 17.

[59] N. P. Colwell to A. Flexner, September 30, 1919, GEB Papers, I, 5, Box 702; A. Flexner to N. P. Colwell, October 6, 1919, *ibid*

[60] A. Flexner, transcript to talk, n.d. but probably 1922, GEB Papers, I, 5, Box 712.

[61] A. Flexner to Harvey Cushing, April 4, 1921, GEB Papers, I, 5, Box 711.

[62] A. Flexner, undated mss., GEB Papers, Box 712.

The proper models for medical education, Flexner believed, were the flexible programs leading to the Ph.D. Medical schools, he repeatedly asserted, should not be intellectually or geographically separated from the other elements of a university. Curricula should not be directed at a mythical "average man," as Cushing and others advocated, since "there is no way of realizing who is the average man during education."[63] A year earlier he had argued that the inability to distinguish the exceptional from the average person, made it imprudent to exclude women from medical education.[64]

Flexner appeared to be more interested in the compatibility of medical education with graduate education in other disciplines than in the use of education to improve medical practice. In 1919, for example, he rejected Colwell's suggestion that the new Rockefeller gift for medical education be allocated in part to retraining the "thousands of physicians who were graduated from the oldtime medical schools." Flexner's published writings, the source of his historical reputation, reinforce the view that he was an educational elitist with relatively little concern for problems of medical practice or the public's health.[65]

By 1921, however, Flexner was persuaded that the problem of the uneven distribution of physicians connected, as he told Colwell, "medical education and medical practice." A survey of distribution, not repetition of the 1909-10 survey was Flexner's answer to the AMA's desire to revive the strategy of the past.[66]

Under Flexner's supervision, two young staff members of the General Education Board, Leonard Harrison and Lewis Mayers, conducted a study of the number, location and distribution of physicians. Flexner provided Harrison and Mayers with strategy, contacts and encouragement. As they started their field visits Flexner warned them that doctors and deans of medical schools "quite confidently make all kinds of statements as to what is and is not happening . . . which are not correct."[67] Similarly, Mayers, with Flexner's support, pressed Colwell to document his claim that medical schools remained open to many poor students.[68]

The study, published in 1924, reflected a major change in Flexner's views. In 1910, Flexner measured educational institutions with standards of knowledge and of pedagogy. Readers of *Bulletin #4* could infer the belief that medical services were as good as the scientific knowledge and clinical training of physicians. Harrison and Mayers, coached by Flexner, measured education and medical care with standards of access; of students to schools, and of patients to physicians. Medical schools, they argued, should be judged by standards which included their effect on the number and distribution of physicians. Mayers and Harrison concluded optimistically that the United States in the twentieth century needed fewer physicians in relation to population than in the previous century. The automobile and more effective knowledge enabled physicians to see more patients. Maldistribution was a serious problem that would be solved by "proper income" and not by the education of "poor boys" who might return to underserved towns and rural areas.[69]

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[63] Harvey Cushing to A. Flexner, April 6, 1921, GEB Papers, I, 5, Box 711; A. Flexner to H. Cushing, April 6, 1921, *ibid.*

[64] A. Flexner to Robert W. Lovett, December 9, 1919, GEB Papers, I, 5, Box 702.

[65] N. P. Colwell to A. Flexner, October 9, 1919, GEB Papers, I, 5, Box 702.

[66] A. Flexner to N. P Colwell, September 29, 1921, GEB Papers, I, 5, Box 711; *cf.* I. M. Rubinow, "Are there too many of us," *Medical Review of Reviews*, 1919, *25:* 197-205.

[67] A. Flexner to Leonard Harrison, June 28, 1921, GEB Papers, I, 5, Box 711.

[68] Lewis Mayers to N. P Colwell, December 18, 1922, *ibid.*

By the time Mayers' and Harrison's report was published, Flexner was preparing to leave the General Education Board.[70] In 1923, when Buttrick, in failing health, became Chairman of the Board, Wickliffe Rose, rather than Flexner, was chosen to succeed him as President. Perhaps more importantly, Flexner was increasingly in conflict with the Medical Education Division of the Rockefeller Foundation, headed by Richard Pearce. When Flexner left the Rockefeller philanthropies in 1928, both the style and the policy of the foundations had changed in ways he found uncomfortable. In his last two years with the Board, Flexner's chief interest was in grants to stimulate research in the humanities.[71]

Although Pearce had been chosen to head the Medical Education Division because he was close to Simon Flexner, he disagreed with Abraham on matters of both policy and style. Pearce advocated grants to universities which adopted geographical rather than strict full-time salary plans for their clinical faculty. Despite objections from both Simon and Abraham Flexner, George Vincent, President of the Rockefeller Foundation, supported Pearce. Moreover, Abraham Flexner frequently entered Pearce's bureaucratic territory, Canada and Europe, while insisting that the Medical Education Division operate only through him in the United States.[72]

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[69] Lewis Mayers and Leonard V. Harrison, *The Distribution of Physicians in the United States* (New York, General Education Board, 1924), *passim*.

[70] Flexner, *I Remember*, p. 340.

[71] Fosdick, *Adventure*, pp. 226-227, 235.

[72] *The Reminiscences of Alan Gregg*, pp. 139-140, *cf.* Alan Gregg, "The work of the Rockefeller Foundation in medical education and the medical sciences, 1920 to 1929, inclusive, under the direction of

Two young staff members, Alan Gregg and Edward Embree, witnessed the changes within the Rockefeller foundations in the early 1920s. Gregg, who worked for Pearce, regarded Abraham Flexner as "far shrewder and wiser as an appraiser than as an administrator." He criticized Flexner for remaining "in his office virtually inaccessible for long periods of times," for being "terrifically jealous of his job and of any apparent incursions or intrusions," and for excessive criticism of his colleagues. Unlike Flexner, who believed that commitment and analytical skill were central to success in foundation work, Gregg attributed his own success to "communication," and to his effectiveness as a middleman between "skilled technological scientific workers" and the "foundation Board."[73]

More importantly, Gregg believed that, as a physician, he understood aspects of medical education that Abraham Flexner ignored. Commenting on a manuscript of Flexner's in 1925, Gregg criticized him for ignoring education in the "obligations [and] techniques of the personal relationship between the physician and the patient."[74] Unlike Flexner, Gregg was comfortable with a career in which his work was restricted to medicine and medical education. Gregg had low tolerance for deviants from orthodox professional careers. For him, the concerns which led Richard Cabot to teach social ethics, for example, were "quite apart from medicine."[75] Nevertheless, Gregg understood and, in time, came to admire Flexner's contribution to medical education. In a tribute on Flexner's eightieth birthday, published in 1947, Gregg wrote that "Flexner's great contribution to medical education" was his belief that it "must be understood and practiced in terms of *education*." Moreover, Gregg praised what had irritated him a quarter of a century earlier: Flexner's "devotion to excellence, his superb dialectic skill, his power of analysis . . . and his realism, unsparing of blame and praise."[76]

Edward Embree, Secretary of the Rockefeller Foundation in the early 1920s, and later President of the Rosenwald Fund, differed sharply from Gregg. To Embree, the Rockefeller philanthropies were characterized by "staleness" in the 1920s. George Vincent, as President of the Rockefeller Foundation, never exerted control over its "thoroughly organized and entrenched" departments. At the General Education Board, Wickliffe

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Richard Mills Pearce, Jr., M.D.," *Rockefeller Foundation Quart. Bull.*, 1931, *5* 358-379; *cf.* Edward Embree on Pearce, note 48, above.

[73] *The Reminiscences of Alan Gregg*, pp. 138-139, 174

[74] Alan Gregg to A. Flexner, June 30, 1924, GEB Papers, I, 5, Box 714.

[75] *The Reminiscences of Alan Gregg.*

[76] Alan Gregg, "Abraham Flexner's eightieth birthday," *J. Hist. Med.*, 1947, *2:* 487-488.

Rose, "displayed the outward habits of a god" but little else. Simon Flexner, still Director of the Rockefeller Institute, "ceased to have new ideas and became increasingly tenacious" of "old ones." After Buttrick retired, "Abraham Flexner found no one in authority who was really interested in his programs . . . The result was that these programs, one by one, petered out with acute distress to Flexner and general apathy on the part of all others concerned."[77]

Flexner took Embree into his confidence. Embree's view of Flexner was based on confidential conversations and letters that were in sharp contrast with the public Flexner. To Embree, Flexner revealed disdain for most physicians, medical educators and the American Medical Association. The worst way to set policy for medical education, he declared, was by "counting heads in the medical profession." Moreover, most medical educators were mercenary: "In medical education there is but one God . . . Profit! Amen." He called the AMA the "advertising center in medical education" which "for years tried to make the world think that Chicago was the medical center of this country."[78]

The version of the history of reform in medical education Flexner told Embree differed from what he published. Harvard, not Hopkins began "the forward movement in American Medicine." Next, New York physicians—he named Francis Delafield, T. M. Prudden, and the "elder Janeway"—represented progress. But reform was "blocked" in Boston and New York "practically for a generation and was in our day, forced by men who in the main came from Baltimore and the Rockefeller Institute."[79]

Johns Hopkins was not, however, entirely worthy of praise. "From many points of view," Flexner wrote, "it is a rather pitiful institution." Every one of the twenty-two German universities had "stronger and ampler clinics." Columbia, Rochester and Yale had reached the same level as Hopkins. Moreover, many of the faculty at Hopkins were smug; "too long satisfied" with their reputations.[80]

Flexner stated his convictions about the role of a foundation executive to Embree more clearly than in any published source. Although he claimed "fearlessly to say what I really thought" as a matter of duty, he described his career as a "game which I have had the opportunity to play

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[77] Edward Embree, "Rockefeller Programs, Early History," unpublished manuscript, n.d. but probably 1930, Edward Embree Papers, 1 Box, Rockefeller Foundation Archives.

[78] Abraham Flexner to E. Embree, May 6, May 10, May 24, 1921, GEB Papers, I, Box 711.

[79] A. Flexner to E. Embree, May 10, 1921.

[80] A. Flexner to E. Embree, May 20, 1921.

with other people's money this last ten years or more."[81] His metaphor signaled his awareness, masked in his autobiography, that the closed politics of philanthropic and educational institutions are driven by techniques as well as by substance.

Abraham Flexner was more satisfied with his career than Embree understood. Embree became his protégé when, as Flexner wrote, "With the passing of Dr. Buttrick, Othello's occupation was gone . . . The prospect for me was personally a dreary one." A decade of innovation was followed by what Flexner perceived as interminable years of bureaucratic struggle. As Flexner looked back on his foundation work, he was, however, far from depressed.[82]

Flexner knew he had participated in the transformation of the foundations from informal, charitable associations to large corporations which produced social and institutional change. His work with the foundations had begun when he and colleagues answered their mail by hand; within a few years even letters to his wife were dictated to a secretary. He was identified as the author of the controversial report of 1910. In 1915, however, when he wrote the first book length account of the work of the General Education Board, no author was named on the title page. Foundation executives were becoming anonymous. Just a few years later, Richard Pearce would instruct Alan Gregg not to write at all for publication.[83]

Tutored by Pritchett and Buttrick, Flexner became an expert in the informal political relationships that create a sense of community among funding agencies and their constituents. In 1909, Flexner snubbed the Chancellor and President of Washington University when he visited St. Louis. After they complained to Pritchett, Flexner received a sharp lesson in practical politics. "It is quite necessary," Pritchett wrote him, "in these visitations, to at least make a call upon the people who are most directly interested." He ordered Flexner to return to St. Louis. A month later, to reinforce his lesson, Pritchett told Flexner that, "I have a delightful letter from St. Louis." In subsequent years, Flexner made political rounds everywhere he visited. His correspondence contains many examples of his influence as a broker of information in academic politics. He relished his role as an insider who knew which stars might be willing to change institutions, why and for what price.[84]

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[81] A. Flexner to E. Embree, May 24, 1921.

[82] Flexner, *I Remember*, pp. 304, 308, 321.

[83] *The Reminiscences of Alan Gregg*, p. 148.

[84] Henry S. Pritchett to A. Flexner, October 20, 1909 and November 15, 1909, Flexner Papers, Box 17.

Flexner had an ambivalent view of his historical importance. He frequently described himself as a humble participant in a repetitive historical process. "Each generation," he told his brother Simon in 1920, "has . . . its battle to fight for recognition and opportunity."[85] He disagreed with Simon who feared that "A Welch or a Prudden will struggle against pitiless nature, but hardly the men they train."[86]

Although Abraham Flexner made important connections among men, money and institutions, and was conscious of his literary, executive and political skills, he often disparaged himself. Writing to Frederick Keppel of the Carnegie Foundation in 1925, he described himself as "an instrument [who] had nothing to lose. . . ."[87] In 1934, changing his metaphor from games and tools to the theater, he declared that he had "played the part of messenger" in negotiations about key appointments to medical faculties.[88] In his autobiography, in 1940, he asserted that he and his colleagues at the foundations "never pretended to have an original idea, but we knew educational strategy." He even denied the importance of the visible hand of rational management: "We worked together informally, without rules or organization . . . we needed no organization."[89]

Flexner could also assert his importance. He agreed with his brother that they had lived through a "heroic period in American medicine," and at times submitted evidence of his own heroism. As he reminisced to Allan Nevins and Saul Benison in 1954, when Andrew Carnegie told him that the men who dominated medical education could not be changed, he had replied, "I don't plan to change them. I propose to get rid of them."[90]

Abraham Flexner's ambivalence about his professional activities was not unique. Similar ambivalence has characterized many intellectuals who discovered the costs and benefits of employment by complicated organizations. The self-image of the intellectual and of the organization man have been in conflict throughout this century. Flexner's interests and skills were those of a man of letters who prized insight: observing, thinking, talking and writing. But his influence was made possible by the cash

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An illustration of Flexner's role as a political insider is J. Whitridge Williams to A. Flexner, February 16, 1917, GEB Papers, IV, Box 589. Williams asked Flexner for information about a rumored power struggle at Harvard as a result of which Walter B. Cannon was supposed to be available.

[85] Simon Flexner to Abraham Flexner, September 22, 1920, GEB Papers, I, 5, Box 711.

[86] A. Flexner to S. Flexner, September 23, 1920, *ibid.*

[87] Abraham Flexner to Frederick Keppel, October 20, 1925, Flexner Papers, Box 17.

[88] A. Flexner, "Reminiscences of Dr. Welch," May 16, 1934, Flexner Papers, Box 15.

[89] A. Flexner, *I Remember*, p. 308.

[90] *The Reminiscences of Abraham Flexner*, Oral History Research Office, Columbia University, 1959, based on an interview conducted by Allan Nevins and Saul Benison in 1954, pp. 14, 20.

of the organizations in which he worked. Insight and influence were compatible only at the price of tension, which was often expressed as ambivalence, and occasionally exploded in aggressiveness and hostility.

Tension was increased by the delicate relationships between foundation staff members and both grantees and donors. Abraham Flexner was not the first, and certainly not the last, American to experience the tension in the organized gift relationship. He was, however, one of the most articulate and effective of the intellectuals who bargained for influence. His awareness of the complexity of institutions and events was extraordinary. His self-awareness was, at times, equally unusual. As he wrote to his wife in 1912, early in his career as a philanthropic executive, "No one can ever know how high the price I pay for opportunity."[91]

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[91] A. Flexner to Anne Flexner, February 4, 1912, Flexner Papers, Box 1.

As this paper was being prepared for publication a book was published which was based on many of the same sources: E. Richard Brown, *Rockefeller Medicine Men: Medicine and Capitalism in America* (Berkeley, California: University of California Press, 1979). I am not convinced by Dr. Brown's reading of the sources, as I have indicated in a review published in the *Bull. Hist. Med.*, 1980, *54:* 591-593.

INTERHUMAN TRANSMISSION OF MEDIEVAL PLAGUE

STEPHEN R. ELL

The incidence of a disease in a given society arises out of a complex interaction.[1] In the case of plague, the usual host-pathogen relationship is further complicated by primary and secondary animal reservoirs as well as insect vectors.[2] During the Middle Ages, plague had an immense impact upon society. The very high mortality associated with the epidemic of 1348 and with subsequent outbreaks has never been satisfactorily explained. The classical model of transmission by the rat-flea does not fit well with the high mortality. Pneumonic transmission, which can produce high rates of infection and death, requires special conditions for occurrence. Transmission by the human flea has also been proposed, but without supporting evidence or any clear modern parallel. Each of these modes of transmission has predictable patterns of infection. This paper will outline those patterns of infection as elucidated by modern research, and analyze a variety of medieval texts with regard to the criteria thus outlined.

Foci of Plague: Reservoirs and Vectors. Reservoirs of plague exist scattered throughout the world. There are, however, none in Western Europe at the present.[3] A wide variety of animal species harbor the infection, wild rodents being the most important.[4] Infection can spread to

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[1] This research was supported by the Geoffrey Gunnar Memorial Scholarship. I would like to express my gratitude for this generous assistance. Special thanks go also to Dr. Julius Goldberg and Dr. Paul O'Keefe of the Loyola University Medical School for their critical reading of this paper. The following abbreviation is used: *PS:* K. Sudhoff, "Pestschriften aus den ersten 150 Jahren nach der Epidemie des 'Schwarzen Todes' 1348," *Arch. Gesch. Med.*, 1910-1925, *4-16.*

[2] This is well expressed in R. B. Heisch, "Zoonoses as a study in ecology with special reference to plague, relapsing fever, and leishmaniasis," *Brit. Med. J.*, 1956, *2:* 669; R. Pollitzer and K. F. Meyer, "The ecology of plague," in *Studies in the Ecology of Disease*, ed. J. Mays (New York: Hafner, 1961), pp. 433-501, 476-477; E. Fugedi, "Pour une analyse démographique de la Hongrie médiévale," *Annales: E.S.C.*, 1969, *24.* 1299-1312.

[3] G. W. Hunter *et al.*, *A Manual of Tropical Medicine*, 4th ed. (Philadelphia: Saunders, 1966), p. 207.

[4] R. K. Chanorahas, E. K. Krishnaswami, and C. K. Rao, "Studies on the epidemiology of plague in a South India plague focus," *Indian J. Med. Res.*, 1974, *62.* 1089-1103, Pollitzer, "Ecology," pp. 485-501; N. D. Emel Yanova and H. Hoogstraal, "*Haemaphysalis verticalis*, Itagaki, Noda and Yamaguchi: Rediscovery in China, adult and immature identity, rodent hosts, distribution and medical relationships," *J. Parasit.*, 1973, *59:* 724-733; Y Karimi, M. Etekhari, and C. Almeida, "La peste expérimentale chez les rongeurs de Brésil," *Bull Soc. Path. éxot.*, 1974, *67:* 591-601.

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predators feeding on the rodents.[5] Spread from one species to another may permit the disease to persist for years after its disappearance from the rodent population. Likewise, it has been proposed that hibernation carries the infection over from year to year so that it may blossom anew each spring.[6] The mechanisms by which plague foci are maintained, or disappear, are to some extent hypothetical. Despite extensive investigations, the nature of plague foci in places such as Indonesia, Vietnam, and Madagascar remains unexplained.[7] While the lack of a plague focus in modern Europe is troublesome from the point of view of explaining the recurrent epidemics of the Middle Ages, there is little hope of determining how the disease maintained itself in medieval Europe.

Plague spreads to man directly from wild animals. In Rhodesia, a human epidemic was produced by mice and bush squirrels of the Wankie National Park.[8] In the United States, contact with coyotes, bobcats, and rabbits, among other species, has led to plague, and infected areas may harbor plague in many species.[9] Such transmission may occur without an insect vector,[10] but has never directly produced a plague pandemic.

Most commonly, plague is introduced into the human population by insect vectors, just as it is transmitted among and within animal species.[11] Not only fleas but lice, ticks, and bedbugs can transmit plague.[12]

Transmission to Man: The Classical Model. The most important and extensive studies of plague transmission come from China and India, which are examples of tropical and semi-tropical regions where plague has been most prevalent in the twentieth century.[13] It was in these countries, in the early years of this century, that the mechanism of plague transmission was first elucidated, a mechanism still widely accepted for the explanation of pandemic plague. According to this view, the black house rat, *Rattus rattus,* becomes infected with plague and dies. The rat flea, *Xenopsylla cheopis,* leaves the dead rat as the latter's body cools and attacks an available host. The plague bacillus, *Yersinia pestis,* multiplies in the flea's digestive tract, blocking it. When a blocked flea bites its host, it regurgitates plague bacilli into its victim.[14] This was the mode of transmission which accounted for the overwhelming majority of the 12.5 million plague deaths in India between 1894 and 1938.[15] It is important to note that man is an incidental victim in this mode of transmission. Interhuman transmission does not occur. Contact with plague victims is safe and rarely is there more than one case per household. These characteristics were offered in support of the rat-flea mode of transmission.[16]

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[5] Y. Karimi *et al.*, "Dépistage de la peste dans le fôyer naturel, type sylvatique, para-détection d'anticorps de *Yersinia pestis* chez les renards," *Bull. Soc. Path éxot.* 1973, *66:* 478-485; I I. Cherchenko *et al.*, "A serological survey of wild rodent pellets, bedding and bird of prey droppings for plague in the endemic foci in the Caucasus," *Zh Mikrobiol. Epidem. Immunobiol* , 1973, *3:* 15-20.

[6] *Ibid* ; Pollitzer, "Ecology," pp. 439-442.

[7] J Delprat *et al.*, "La peste bubonique, à propos de dix cas observés à l'Hôpital Principale Fianarantsoa (Madagascar)," *Medna. Trop.* 1974, *34*· 567-72· B Velmirovic, "Plague in Southeast Asia," *Trans. R. Soc. Trop. Med Hyg.*, 1972, *66.* 479-504.

[8] A. O. Pugh and A. D. Parker, "Plague: Rhodesia's first recorded outbreak," *Cent Afr J. Med.*, 1974, *21:* 93-96.

[9] C. F. von Reyn *et al.*, "Bubonic plague from exposure to a rabbit: A documented case and a review of rabbit-associated plague cases in the United States," *Amer J Epidem* , 1976, *104*· 81-87; J. D. Polano, A. M. Barnes, and J J. Herman, "Human bubonic plague from exposure to a naturally infected wild carnivore," *Amer. J. Epidem.*, 1973, *97* 102-105.

[10] Herman, "Human bubonic plague," pp. 102-105.

[11] L. Kartman and B. W. Hudson, "The effect of flea control on *Yersinia pestis* antibody rates in the California Vole, *Microtus californicus* and its epizootilogical implications," *Bull. Wld. Hlth. Org.*, 1971, *45:* 295-301.

[12] M. T. James and R. F Harwood, *Herm's Medical Entymology*, 6th ed. (London: Macmillan, 1969), pp. 301-317; Pollitzer, "Ecology," pp. 458-474

[13] L. F. Hirst, *The Conquest of Plague* (Oxford: Oxford University Press, 1953), p. 333.

Spread of plague can occur with contaminated grain or other merchandise, but most seems to involve infection of one rat colony by another.[17] *R. rattus* is the major shipboard rat and may well have borne plague along the sea routes. The disease thus tends to enter countries via port cities. On land, the situation is less clear. Left alone, *R. rattus* rarely travels even 200 yards from his home and will travel great distances to return home if removed by man,[18] as in a wagon of grain.

Much modern evidence has upheld the importance of this model of transmission and *X. cheopis* has been shown repeatedly to be the most efficient vector of plague.[19] A careful study of plague in Java revealed that almost all transmission involved *R. rattus* and *X. cheopis.*[20] An Egyptian study has demonstrated that fleas as well as rats must be exterminated to prevent the spread of plague, since blocked fleas may abandon slain rats and infect humans.[21]

Rat-borne plague has a predictable seasonality. An initial outbreak of plague can occur in any season[22] but once a focus of plague is established, the disease usually appears in the spring and peaks in midsummer.[23] The seasonality reflects the rodent population for in general, as the rodent population increases, so do outbreaks of the disease.[24] High population density alone may lower the resistance of rats to plague.[25] Moreover, rats are more susceptible to plague in certain seasons than in others.[26]

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[14] B. Davis *et al., Microbiology,* 2nd ed. (Hagerstown, Md.: Harper and Row, 1973), pp. 803-804.

[15] Hirst, *Conquest,* pp. 209-301.

[16] Pollitzer, "Ecology," p. 473.

[17] Hirst, *Conquest,* pp. 305-329.

[18] L. M. Bhattacharji and S. C. Sea, "Rat movement in the epidemiology of plague in Calcutta, 1948-1950," *Alum. Ass. Bull. All-India Inst. Hyg. Publ. Hlth.,* 1954, *17:* 57-64.

[19] R. Pollitzer, "A review of recent literature on plague," *Bull. Wld Hlth. Org.,* 1960, *23:* 313-400, p. 361.

[20] R. W. Turner *et al.,* "Dynamics of the plague transmission cycle in Central Java," *Bull. Hlth. Stud Indonesia,* 1974, 2. 15-37.

[21] A. Mahdi, M. Arafa, and A. Gad, "Assessment of trapping and dusting with H.C.H. ('Gammaxane') as anti-rat and flea control in A.R.E., 1968," *J. Egypt. Pub. Hlth. Ass.,* 1972, *47:* 96-105.

[22] M. Bahmanyar and D. C. Gacanaugh, *Plague Manual* (Geneva: WHO, 1976), p. 4.

While it has been argued that *R. rattus* is so exquisitely sensitive to plague, that the rat population would be destroyed by an epizootic and later reinfection of a new rat population by a reservoir of chronic infection would be required for a new outbreak,[27] recent scholarship does not bear this out. Some rats have a high-level non-specific resistance to plague, while others are partially resistant and may suffer mild or chronic infection. After an outbreak, most susceptible rats would be dead and the rat population resistant for a time.[28] The constantly changing proportions of resistant, partially resistant and susceptible rats may account for the episodic and widely spaced epidemics in man.

Some of the mechanisms of rodent resistance have been elucidated. The serum level of transferrin and other iron-chelating proteins corresponds to the level of resistance, at least in mice. Thus an iron drug like Blutal makes the animals more susceptible.[29] Infection with various species of *Salmonella* confers some immunity to plague[30] and *Salmonella* infections may safely be assumed to have been ubiquitous in medieval Europe.

Far more problematic, however, is the history of *R. rattus* in medieval Europe. The existence of plague in the fourteenth century has been used to prove the presence, in large numbers, of *R. rattus*. Thus Shrewsbury has stated rat infestation was "little different" in India in 1896 and in

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[23] *Ibid.*; Pollitzer, "Ecology," p. 442

[24] Pollitzer, "Ecology," p. 442

[25] D. E. Davis, "The characteristics of rat populations," *Quart. Rev. Biol*, 1951, *28:* 373.

[26] E. R. Brygoo and S. Rajenison, "Sensibilité du *Rattus rattus* de Tananarive à l'inoculation expérimentale de *Yersinia pestis*. Influence de la splenectomie," *Archs. Inst Pasteur Madagascar*, 1972, *41*· 17-27.

[27] Abram S. Benenson, "Plague," in *Communicable and Infectious Diseases*, 7th ed., ed. F. H. Top and P. F. Wehrle (St. Louis: Mosby, 1972), p. 451

[28] T. H. Chen and K. F. Meyer, "Susceptibility and antibody response of Rattus species to experimental plague," *J. Infect. Dis.*, 1974, *129 Supplement:* 562-571, Pollitzer, "Ecology," p. 455.

[29] A Wake, M. Yamamoto and H. Moritz, "Double effects of an iron drug in induction of plague caused by an attenuated strain," *Jap. J. Med. Sci. Biol.*, 1973, *27*· 229-239.

[30] E. R. Brygoo and S. Rajenison, "Recherche d'une immunité paraspécifique pour le bacille de Yersin chez des souris inoculées avec des salmonelles," *Archs. Inst. Pasteur Madagascar*, 1972, *41:* 13-16. This may be due to antigenic similarity. Some components of the lipopolysaccharide are shared· J. H. Hartley, C. A. Adams and T. G. Tornabene, "Chemical and physical properties of lipopolysaccharide of *Yersinia pestis*," *J. Bact.*, 1974, *118:* 848-854.

Dublin in 1348.[31] He goes on to localize plague to those English counties with critical rat densities as well as human ones.[32] The arrival in Europe of *R. rattus* has been dated by several scholars to the period immediately preceding the Black Death.[33] Immense difficulties preclude the acceptance of this dating. Paleontology dates *R. rattus* back to the Pleistocene. First-century art may depict *R. rattus* and the mechanism of the great plague pandemic of sixth-century Europe is hard to explain without *R. rattus*.[34] If *R. rattus* was always present in Europe plague should also have been present. The Pirenne hypothesis has been brought in to explain the disappearance of the disease.[35] Pirenne claimed that the expansion of Islam cut off contact between Europe and the Middle East. This hypothesis has been questioned.[36]

If *R. rattus* is not an adequate explanation of the coming of plague, neither can it explain the disease's disappearance. It has been suggested that the invasion of Western Europe by the Norwegian rat spelled the end not only for *R. rattus* but for the plague.[37] It is certainly true that *R. rattus* is only found at present in southern Europe and a few port cities while *R. norvegicus* dominates the Continent.[38] On the other hand, *R. norvegicus* has been in Europe for a very long time and can live together with *R. rattus*.[39] No evidence has been put forward to show that *R. norvegicus* could not spread plague on a large scale and the fact that *R. rattus* predominates in India where the most important studies were done may have obscured the roles of other agents.[40]

It is unfortunate that we know nothing of the rat situation in fourteenth-century Europe. There is no reason to assume the predominance of *R. rattus,* nor can we make even vague estimates of the level of rat infestation. Medieval writers left no comments on whether they had a rat problem and their silence may as easily mean that was no such problem as it may mean they took it for granted. No satisfactory explanation for the end of the plague epidemics has so far been proposed.[41]

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[31] J. F. D. Shrewsbury, *A History of Bubonic Plague in the British Isles,* (Cambridge: Cambridge University Press, 1970), p. 49.

[32] *Ibid.,* pp. 22-36, 53.

[33] M. D. Grmek, "Préliminaires d'une étude historique des maladies, *Annales: E S. C.,* 1969, *24:* 1473-1483, p. 1479; C. Elton, "Research on rodent control," in *Control of Rats and Mice,* ed. D. Chitty, 3 vols. (Oxford: Clarendon Press, 1954), 1: 1-24, p. 3; Shrewsbury, *Bubonic Plague,* pp. 7-13.

[34] G. Girard, "A quelle époque remonte la présence du rat (*Rattus rattus*) en Europe," *Bull. Soc. Path. éxot.,* 1974, *67.* 601-606; J. H. Biraben and J. LeGoff, "La peste dans le Haut Moyen Age," *Annales· E. S. C.,* 1969, *24:* 1484-1510.

[35] Shrewsbury, *Bubonic Plague,* pp. 19-20.

[36] See on this R. Lopez, "Mohammed and Charlemagne. a revision," *Speculum,* 1943, *18:* 14-38.

[37] F. P. Wilson, *The Plague in Shakespeare's London* (London: Oxford University Press, 1927); G. Blanc, "La disparation de la peste et ses causes épidémiques," *Sem. Hop. Paris,* 1961, *37·* 105-110.

[38] E. Schwarz, "Classification, origin and distribution of commensal rats," *Bull. Wld. Hlth Org.,* 1960, *23:* 411-416.

[39] Pollitzer, "Ecology," pp. 447-448; F. E. Loosjes, "Is the brown rat (*Rattus norvegicus*) responsible for the disappearance of plague from Western Europe," *Documenta Med. Geogr. Trop.,* 1956, *8:* 175.

[40] Pollitzer, "Ecology," p. 492.

Rat-borne plague can be expected to show single cases per household, low risk of infection from interpersonal contact, an explosive rat mortality preceding the human epidemic, and a spring-summer seasonality. These are the patterns we shall look for in examining medieval texts.

Interhuman Transmission: Human Fleas. Each focus of plague seems to enjoy some individual characteristics. Plague can spread from person to person by human fleas and in some locales this mode of transmission may predominate. Experience in North Africa first raised the real possibility of major interhuman spread.[42] Studies in Iran and the Middle East, where there are few, if any, domestic rodents, have attempted to demonstrate spread among humans by *Pulex irritans,* the human flea.[43] As might be expected, plague spread in this way tends to infect whole households and contact with the infected is dangerous.[44] N. H. Swellengrebel has suggested that interhuman transmission of plague is favored in those climates and cultures where a lot of loose clothing is worn. The clothing harbors human parasites. In hot climates where little is worn, such transmission would be minimal. These two alternatives describe the Middle East (along with medieval Europe) on the one hand and Southeast Asia and India on the other.[45]

Experiments have verified that *P. irritans* can spread plague.[46] Recent guidelines for plague surveillance pay special attention to this flea which is passed not only among humans but also between dogs and humans.[47]

The implications of this mode of transmission for explaining the outbreaks in the Middle Ages are considerable. A recent historical study has attempted to show that plague came overland from Central Asia to the

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[41] Grmek, "Préliminaires," p. 1477.

[42] G. Blanc and M. Baltazard, "Recherches expérimentales sur la peste: L'infection de la puce de l'homme," *Comptes rendus hebd. Seanc. Acad. Sci Paris,* 1941, *213.* 813-816.

[43] M. Baltazard *et al.*, "Recherches sur la peste en Iran," *Bull. Wld. Hlth. Org* , 1960, *23* · 141-155; M. Baltazard, "Enquête sur les conditions de la peste au Moyen-Orient," *Bull. Wld Hlth. Org* , 1960, *23* 157-167.

[44] Baltazard, "Peste en Iran," pp. 151-153.

[45] N. H. Swellengrebel, "Interhumane transmissie bij builenpest," *Ned Tijdschr. Geneesk.*, 1967, *111:* 647-649.

[46] Y. Karimi, M. Eftekhari and C R. Almeida, "Sur l'écologie des puces impliquées dans l'épidémiologie de la peste et le rôle éventuel de certains insectes hématophages dans son processus au Nord-est du Brésil," *Bull. Soc. Path. éxot.*, 1974, *67.* 583-591.

[47] "Technical guide for a system of plague surveillance," *Wkly. Epidem. Rec.*, 1973, *48* · 149-160.

Black Sea.[48] This route would take plague through the proposed areas of human flea transmission just before reaching Europe.

As long ago as 1913, interhuman spread of plague in the Middle Ages was proposed as an explanation of the virulence of the Black Death. Certain features of the recent outbreak in Rhodesia have revived speculations about whether *R. rattus* and *X. cheopis* are exclusive agents of transmission.[49] Transmission of plague by the human flea is still far from universally accepted as a major mode of spread. Nonetheless, certain patterns of infection are predictable if medieval plague was transmitted in this way. Multiple cases per household and high risk from contact with infected persons should typify this type of spread. The seasonality is unclear.

Interhuman Transmission: Pneumonic Plague. Plague infection introduced by a flea in a human host may assume three forms. If the infection is confined to the regional lymph nodes, bubonic plague ensues. This is the mildest form, though it is often fatal. The infection may become blood-borne or septicemic. Blood-borne organisms may localize in the lung and a plague pneumonia may ensue. This is the so-called secondary pneumonic plague. Unlike septicemic and bubonic plague, pneumonic plague can be directly contagious via a respiratory route.

Two major pneumonic plague epidemics have occurred, one in Manchuria in 1910-1911 and one in Shensi in 1920-1921. These accounted for 60,000 and 16,000 deaths respectively.[50] Pneumonic plague has been known to spread while local rodents remained uninfected even at the height of an epidemic.[51] Creighton's examination of fourteenth-century descriptions of plague revealed that plague pneumonia was common,[52] although whether as a complication of bubonic infection or by respiratory infection is unclear.

Primary pneumonic plague epidemics occur almost exclusively in low temperatures with high relative humidity. Under these conditions, frozen sputum droplets remain virulent for long periods. Winter over-crowding also favors pneumonic transmission.[53] Local conditions, however, appear crucial. Although about 12% of Indian cases in 1927 developed a secondary pneumonia, no primary pneumonic cases were reported. In fact, there is no satisfactory explanation of why pneumonic plague is not more contagious.[54]

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[48] M. W. Dols, *The Black Death in the Middle East* (Princeton, Princeton University Press, 1977), p. 49.

[49] C. J. Martin, "Plague," *Brit. Med. J.*, 1913, *1*. 59; R. S. Roberts, "Recent developments in the history of plague," *Cent. Afr. J. Med.*, 1974, *21*· 91-93; Jean-Noel Biraben, *Les Hommes et la peste en France et dans les pays européens et méditerranéens*, 2 vols. (Paris: Mouton, 1926), 1: 12-13. Cf. Hirst, *Conquest*, pp. 239-246.

[50] Wu Lein-Teh, *A Treatise on Pneumonic Plague* (Geneva: League of Nations Health Organization, 1926); *idem*, "The second pneumonic plague epidemic in Manchuria, 1920-21," *J. Hyg. Camb.*, 1923, *21:* 262-288; C. F. Nathan, *Plague Prevention and Politics in Manchuria, 1910-1931* (Cambridge. Harvard University Press, 1967), p 66; Berenson, "Plague," p. 450.

[51] Pollitzer, "Ecology," p. 474; K. F. Meyer, "The natural history of plague and psittacosis," *Publ. Hlth. Rep., Wash.*, 1957, *72*. 705-719; cf. Shrewsbury, *Bubonic Plague*, pp. 3-6.

[52] Charles Creighton, *A History of Epidemics in Britain*, 2nd ed. (1894, New York: Barnes and Noble, 1965), pp. 120-142.

If pneumonic plague predominated in medieval Europe, we would expect the disease to occur mostly in winter. More importantly, the disease would present as pneumonia, rather than as bubonic plague, that is, the disease would not present with buboes, but with fever and cough.

Medieval Plague. The plague of 1348 was viewed as a catastrophic event and evoked a considerable written response.[55] Estimates of mortality have varied widely, as have assessments of the ultimate impact of the Black Death on European society.[56] Medieval texts leave these questions unanswered but do reveal the patterns of infection prevalent at the time.

First, we must consider how reliably we may diagnose plague as the disease of medieval "pestilences." The disease itself is easy to diagnose, for no other rapidly fatal disease presents as bubonic plague does. Medieval observers knew this. One anonymous writer cautioned against considering any serious febrile illness plague.[57] Meister Bernhard of Frankfurt noted that buboes distinguished plague from other fevers, a point about which Johannes of Tornamira agreed.[58] Thus it seems relatively easy to diagnose plague in any epidemic where the symptoms are described.

Medieval physicians knew the symptoms of plague well and described their variations.[59] One writer described a variant with buboes but without fever—and harmless—a good definition of pestis minor.[60] The whole gamut of skin lesions from a simple erythematous rash to the rare and striking variola pestis was recorded.[61] Signs of poor prognosis were known.[62] The pale, comatose patient, probably representative of endotoxin shock or plague meningitis, was considered doomed.[63] Secondary plague pneumonia also received its share of attention. Dyspnea, dry cough, and hemoptysis were known to augur the worst.[64] Ulricus Eberhard de Constancia was aware that the lung was peculiarly susceptible to plague.[65] The overwhelming majority of descriptions of the disease, however, are of the bubonic presentation. Table 1 summarizes the presentations of plague revealed in an examination of over 300 fourteenth- and fifteenth-century texts. Those texts which have been taken to indicate the possibility of primary plague pneumonia do not describe that disease precisely, but merely uphold the possibility of infection from the breath of plague victims.[66] A type of plague resulting in sudden death was also described, notably by Gilles li Muisit.[67] Such cases have occurred in modern China and represent septicemic or pneumonic variants.[68]

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[53] Hunter, *Tropical Medicine,* pp. 209-212.

[54] Hirst, *Conquest,* pp. 221-224.

[55] In general, see P. Ziegler, *The Black Death* (New York: Harper and Row, 1969); A. Campbell, *The Black Death and Men of Learning* (New York: AMS Press, 1966).

[56] Among the key interpretations are E. Charpentier, "Autour de la peste noire: famines et épidémies dans l'histoire du XIVe siècle," *Annales· E.S.C.,* 1962, *17:* 1062-1092; *idem, Une ville devant la peste: Orvieto et la peste noire de 1348* (Paris: S.E.V.P.E.N., 1962); Yves Renouard, "La peste noire de 1348-50," *Revue Paris,* 1950, *57:* 107-119; W. M. Bowsky, "The impact of the Black Death upon Sienese government and society," *Speculum,* 1964, *39:* 19-34.

[57] *PS,* 1914, *7:* 114.

[58] Bernhard of Frankfurt, *Consilium contra pestem, PS,* 1915, *8:* 247; Johannes von Tornamira, *Praeservatio et cura apostematur antrosorum pestilentialium, PS,* 1911-12, *5:* 48

[59] Campbell, *Men of Learning,* pp. 79-82; Creighton, *Epidemics,* pp. 120-121; *Questions, PS,* 1919, *11:* 52; Jean of Burgundy, *Tractatus Johannis de Burgundia de morbo epidemiae, PS,* 1911-12, *5:* 65; Antonio de Salumonibus, *Liber mag. PS,* 1925, *16:* 124; *Collectorum maius, PS,* 1916, *9:* 138. For a modern review of clinical presentations, see R. D. S. Araujo and T. A. Sherlock, "Aspectos clinicos,

It is reasonable to conclude from this that bubonic plague predominated in medieval Europe. There are no totally clear-cut descriptions of primary

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terapeuticos e profilaticos de peste no estago de Bahia-periodo de 1936 a 1967," *Reuta bras. Malar. Doenc. trop.*, 1971, *23:* 51-63.

[60] *Collectorium Minus, PS*, 1916, *9:* 120: "In Bubonibus id est apostematibus omnis febris male, sed sine febri non erit periculum", Berenson, "Plague," p. 453.

[61] *Regimen pestilenticum, PS*, 1914, *7* 109; Petrus de Kothobus, *Tractatus, PS*, 1919, *11.* 125; Giovanni Santa Sofia, *Consilium ad pestilentiam, PS*, 1912-13, *6·* 348; R. Pollitzer, *Plague* (Geneva, WHO, 1954), pp. 425-427; M. Isaacson, *et al.*, "Unusual cases of human plague in South Africa," *S. Afr. Med. J.*, 1973, *47:* 2109-2113.

[62] Francinus de Bononia, *Pestraktat, PS*, 1912-13, *6:* 331; Johannes Aygels von Korneuburg, *PS*, 1912-13, *6: 372*, *Signa pestilenciae, PS*, 1914, *7:* 75; *Regimen praeservativum et curativum, PS*, 1914, *7·* 80.

[63] Christianus Praegensis, *Vor dy pestilencia, PS*, 1914, *7:* 105; *PS*, 1914, *7:* 68; Pollitzer, *Plague*, p. 418; J. R. Cantey, "Plague in Vietnam," *Archs. Intern. Med.*, 1974, *133:* 280-283; S. C. Hayes, "Bubonic plague," *N. Z. Med. J.*, 1973, *77* 389; cf. Biraben, *Hommes et peste*, 2: 45-46. On endotoxin in plague, see R. Walker, "Detection of an endotoxin-like substance during human plague bacteremia." *S E. Asian J. Trop. Med. Publ. Hlth.*, 1972, *3:* 221-224; T. Butler *et al.*, "Bubonic plague: Detection of endotoxemia with the Linnulus Test," *Ann. Intern. Med.*, 1973, *79·* 642-646.

[64] Sigmund Albich, *Regimen, PS*, 1914, *7:* 93; *Signa pestilenciae, PS*, 1914, *7:* 75; *Tractatus optimus de pestilencia, PS*, 1925, *16:* 105; Hunter, *Tropical Medicine*, p. 212; cf. Carpentier, *Orvieto*, pp. 222-225.

[65] Ulricus Eberhard de Constancia, *Regimen, PS*, 1914, *7:* 63.

[66] *Leve consilium, PS*, 1911-12, *5:* 374; Ulricus Eberhard de Constancia, *Regimen, PS*, 1914, *7:* 63, Bartolomeo Santa Sofia, *PS*, 1912-18, *6:* 352.

[67] Biraben, *Hommes et peste*, 2: 48; *De pestilencia, PS*, 1912-13, *6:* 353: ". . . si como sono febre, posteme, altre malatia assal, le qual fono leczente subitamente perire."

[68] Hirst, *Conquest*, p. 225; Pollitzer, *Plague*, p. 18.

Presentation	Number	Percent of Total
1. Bubonic	58	77
2. Bubonic with secondary pneumonia	14	19
3. Primary plague pneumonia	3 (?)	4
4. Total	75	100

Table 1: Presentation of Medieval Plague

pneumonic plague. Secondary plague pneumonia was well known, but this disease is rarely contagious except under specific weather conditions.

If the classical form of plague transmission predominated in the Middle Ages, the Black Death should have been preceded by an explosive black rat mortality. Historians have noted that contemporary accounts omit any mention of rat mortality.[69] This is hardly telling evidence either way, since silence may reflect lack of interest as well as lack of occurrence.

Fourteenth- and fifteenth-century writers did ponder the relationship of plague to animals. The swarming of burrowing animals (along with earthquakes and various celestial events) was, according to ancient teaching, predictive of plague. Animals mentioned are mice, moles, and toads.[70] These animals are not said to die, however. When animal mortality is described it involves domestic animals, dogs and cats, or "animals" without specification. For example, Peter de Kothobus wondered why plague affected men, but not animals except for a few cattle and pigs.[71] The *Cronica fiorentina* commented, "It strikes not only men and women, but also sensitive animals, dogs and cats, chicken, cattle, asses and sheep."[72] Animal mortality was considered, at least by some, as trivial compared to human.[73] From ancient teachings, men knew that plague was somehow connected with animals, but when they looked they saw only a few domestic animals dead. Whether these animals actually died of plague, neglect or some other cause[74] is impossible to say. It is, however, difficult to accept an unusual rat mortality surrounding fourteenth- and fifteenth-century plague.

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[69] Shrewsbury, *Bubonic Plague*, p. 14

[70] Henricus de Bremis, *Causae, signa, et remedia contra pestilentiam*, *PS*, 1914, *7:* 82; Heinrich Rybinitz, *Tractatus de Praeservationibus et Remediis Pestilentiarum*, *PS*, 1910-11, *4.* 211; *Quaestiones de peste*, *PS*, 1918-19, *11*·58.

[71] Petrus de Kothobus, *Tractatus de Pestilencia*, *PS*, 1919, *12:* 124: "Et videmus quod quandoque homines et animalia non et quandoque boves et alia non . oves vel porci et alia non" . . *Tractatus de febris pestilencialibus*, *PS*, 1923, *14:* 159.

[72] *Cronica fiorentina di Marchione di Coppo Stefani Rerum italicarum scriptores*, vol. 30, pt.1. (Bologna: Zanichelli, 1931-37), p. 230; Boccaccio, *Decameron*, trans. J. M. Rigg (London: Thames and Hudson, 1930), p. 5 also speaks of the death of pigs; *Tractatus optimus de pestilencia*, *PS*, 1925, *16:* 107-108.

[73] *Quaestiones de Peste*, *PS*, 1919, *12* 57· "Queritur, quare pestis magis invadat homines quam bestias?"

Although the initial outbreak of 1348-1350 raged continuously over Europe, subsequent epidemics showed considerable seasonality. Medieval commentators felt that autumn was plague season. Autumn is the most noxious season, wrote Johan of Saxony.[75] Other tracts place most plague at the end of summer and in the fall.[76] None of the texts examined gave any other season as predominant for plague.

Fall, of course, represents harvest time. Harvest has been known to draw rats into the countryside where they may infect the rural population.[77] As we have noted, spring is the season for rat-borne plague in cities. Plague in Vietnam, however, has been shown to occur in periods of low rainfall, independent of the harvest.[78] The seasonality of medieval plague is not that of rat-borne plague. In Graph 1 the onset of some 419 plague epidemics involving all of Western Europe including the British Isles, is summarized:

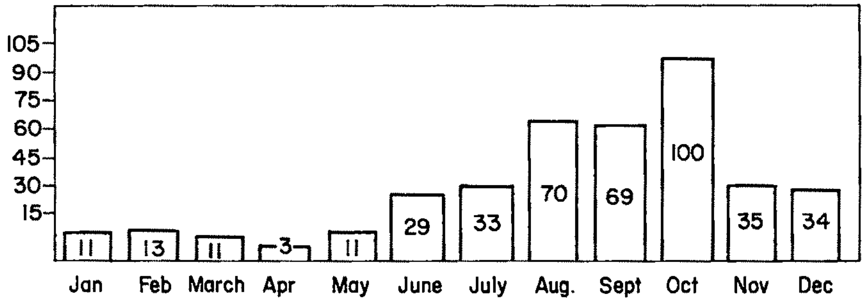

Figure 1. Months of Onset of Plague Epidemics in Western Europe 1348-1720.

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[74] *Tractatus de praeservationibus, PS,* 1910-11, *4:* 214.

[75] Johan of Saxony, *Compendium de Epydemia, PS,* 1924, *16:* 21: "Nam autumpnus omni etati omnique nature et in omni regione est nocius."

[76] *PS,* 1925, *17:*40; *Collectorium Minus, PS,* 1916, *9:* 119. "Quia pestes consueverunt ut plurimum in autumpno venire . . ." J. Charlier, *La peste à Bruxelles de 1667 à 1669* (Brussels: Pro Ciuitate Collection Histoire, 1969), pp. 180-195, shows highest mortality of seventeenth-century Brussels occurred in summer and fall, *Tractatus optimus, PS,* 1924, *16:* 108 *Tractatus de pestilencia magistri B., PS,* 1924, *16:* 81; *Compendium de epydemia compilatum per Magistrum Johannen de Saxonia, PS,* 1924, *16:* 21; *Compendium epidimie, PS,* 1917-19, *11:* 167; *Ad preservandum a pestilencia regimen bonum, PS,* 1917-19, *11:* 72; *Quaestiones de peste, PS,* 1917-19, *11:* 57; Henricus de Bremis, *PS,* 1914, *7:* 82-85; *Leve consilium, PS,* 1911-12, *5:* 368-369; *Tractatus de praeservationibus et remediis pestilentiarum, PS,* 1910-11, *4:* 210-211.

[77] Hirst, *Conquest,* p. 265.

[78] B. Velimirovic, "Untersuchungen uber die Epidemiologie und Bekampfung der Pest in Sudvietnam," *Zentbl. Bakt. Parasit.,* 1972, *228:* 482-508.

Clearly, autumn did represent plague season. Why this should be the case is unclear. Perhaps men working in the fields contracted plague from wild rodents and then spread it in villages and towns. In any case, this pattern is difficult to explain by rat-borne disease.

While medieval physicians emphasized early treatment, and occasional "cures" of plague,[79] the most widely accepted prophylaxis was flight.[80] Plague was considered contagious by interpersonal contact.[81] Bartolomeo Santa Sofia raised the possibility of plague carriers, asymptomatic persons who infected others.[82] Physicians were advised to stand well away from the victim, and it was suggested that the patient's urine and sputum be disposed of at some distance and that his bedclothes be changed frequently.[83] In Venice, the beds in which plague victims died had to be burned, according to a law of 1576; and other laws governed the handling of the victim's clothing.[84] Thus both the plague victim and his clothing and blankets were considered infectious. According to the *Cronica fiorentina,* physicians demanded payment in advance for seeing plague victims, an examination mostly visual and performed at some distance.[85] Jean de Venette claimed that few who visited the sick survived,[86] while Agnola di Tura del Grasso described how family members abandoned one

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[79] Jean of Burgundy, *Tractatus, PS,* 1911-12, *5:* 67: ". . . unde illa, quae spectant ad curam, in his morbis non deberent procrastinari." Stephanus de Doctoribus, *Consilium aliud contra epidemialem pestem, PS,* 1912-13, *6:* 356.

[80] *Kurze lateinische Pestregimen, PS,* 1914, *7.* 73; Ulricus Eberhard de Constancia, *Regimen, PS,* 1914, *7:* 62: "Secundo valet multum prae omnibus pestilenciam evitare"; Heinrich Rybinitz, *Tractatus, PS,* 1910-11, *4:* 219; John von Goltingen, *Ad preservandum ab epydimia, PS,* 1911-12, *5:* 37-38: "Item sciatur quod melior cura est fuga a patria"; Pankratnus creuzers von Traismauer, *Regimen, PS,* 1912-13, *6:* 375; Giovanni dei Donoi, *Modus vivendi tempore pestilentiali, PS,* 1911-12, *5:* 359.

[81] Sigmund Albich, *Regimen tempore pestilenciae, PS,* 1914, *7:* 92: " . . pestilencia est morbus contagiosus et vadit ab uno homine ad alium." Johannes Aygels von Korneuberg, *Regimen pestilenciae, PS,* 1912-13, *6:* 371: ". . . est morbus contagiosus et vadit ab uno homine in alio, ymo solo anhelitu unius inficit alium"; Magister Albertus, *Consilium, PS,* 1912-13, *6.* 316; Johannes Jocabi of Montpellier, *Tractatus de pestilencia, PS,* 1925, *17* 25; *Causa epidemiae et praeservatio eiusdem, PS,* 1911-12, *5.* 43-44 *Remedium contra pestilentiam, PS,* 1910-11, *4:* 396; *Nota de bonitate regiminis vitae, PS,* 1910-11, *4:* 396; *Regulae technicae contra pestilentiam, PS,* 1910-11, *4:* 421; *Causa epidemiae et praeservatio eiusdem, PS,* 1911-12, *5:* 43-44, Magister Albertus, *PS,* 1913, *6:* 316.

[82] Bartolomeo Santa Sofia, *Consilium Sive tractatus contra pestiferum morbum, PS,* 1912-13, *6:* 352: " . et ideo dicutur morbus contagiosus. Item notandum ultimo quod possibile est, quod aliquis sit infectus et non paciatur . . . et iste teman inficit alios et tales moriuntur a peste."

[83] *Observandum, ubi contingent visitare pestilenticum, ibid.,* 1910-11, *4:* 405; Kanutus, *PS,* 1911-12, *5:* 57; Jo. Jacobi, *PS,* 1911-12, *5:* 57.

[84] Archivio di Stato di Venezia, *Provveditori alla Sanita, Rubrica delle Legge,* vol. 2, folio 96.

[85] *Cronica fiorentina,* p. 230.

[86] Jean de Venette, *The Chronicle of Jean de Venette,* trans. Jean Birdsall (New York: Columbia University Press, 1953), pp. 48-52.

	Number	Percent of Total	Avg. Cases/ Family
Families with multiple cases per household	50	96	17.5
Families with single cases per household	2	4	1.0

Table 2: Cases per Household of Plague in 52 Families

another for fear of infection.[87] No text examined denied the danger of contact with plague victims.

Rat-borne plague rarely produces more than one case per household. Was this the pattern in the Middle Ages? Certainly, contemporary writers did not think so. Henricus de Bremis described, how in his experience, one infected person infected his household, members of which in turn infected others until a whole region was decimated.[88] This pattern of whole households falling to the disease is repeated frequently.[89] Was this in fact the case?

Family records from late medieval Italy shed some light on this question. According to a memorial to noble families wiped out in 1348 in Venice, 75% of the families left no heir alive, and the average number of deaths per family was 18.1.[90] The Ricordi of the Civriani of Florence describes nine plague deaths in that family. On two occasions only one family member died, on one occasion two, and once five succumbed. Their average age was 15.5 years and seven of nine were male.[91] Even these limited data demonstrate that multiple cases per household were the rule not the exception. (See Table 2.)

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[87] Agnolo di Tura del Grasso, *Cronaca senese attributa ad Agnola di Tura del Grasso detta la Cronica Maggiore*, eds., A. Lisini and F. Iacometti, *Cronache senesi. Rerum italicarum scriptores*, n.s. vol. 15, pt. 6 (Bologna: Zanichelli, 1931-1937), pp. 555-560; Yves Renouard has accepted this totally, see "La peste noire."

[88] Henricus de Bremis, *Causae, signa, PS*, 1914, *7:* 86: "Et aliquando contingit, quod homines habitantes in una domo omnes inficiuntur et moriuntur . " *Ibid.*, p. 85: "Item quinque sunt morbi contagiosi, qui transeunt de homines, ut lepra, pestilenciae febres, caducus, catarrus et quam plures alii morbi sub istis continentur. Circa est notandum quod pestilentia est morbus valde contagiosus et infectuosus et deambulans, quia ambulat de homine in hominem . . . quia in rei virtute unus pestilenticus in una domo posset inficere totam domum . . . sicut nos vidumus ad experienciam."

[89] Jakob de Stockstals, *Ex regimine magistri Jakobis de Stokstal doctoris in medicina, PS*, 1912-13, *6:* 373. ". . . quia talis morbus est contagiosus, qua propter unus inficitur ab alio, que est una causa principalis, propter quam in eadem domo omnes fere moriuntur saepe." Johannes von Tornamira, *Praeservatio, PS*, 1911-12, *5:* 51: "Et ideo videmus quod uno patient quam plures in domo solent venire in passionem."

[90] *Rubrica delle Legge*, vol 2, folio 194.

[91] Archivio di Stato di Firenze, *Vari di Casa Civriani, Manoscritti*, MS 77, folios 33R, 36R, 37V, 40V, 41R.

The patterns described in medieval texts and verified by other medieval records are those of interhuman transmission by the human flea. Autumn seasonality, lack of rat mortality, and multiple cases per household argue against rat-borne plague. The seasonality plus bubonic presentation rules out pneumonic spread. Many questions remain unanswered. The nature and disappearance of a European plague focus cannot yet be explained. There is no adequate explanation for the disease's early medieval disappearance or fourteenth-century recrudescence. Perhaps more scouring of medieval records in the light of modern scientific knowledge can begin to penetrate the darkness.

THE VICTORIAN MEDICAL PROFESSION AND MILITARY PRACTICE: ARMY DOCTORS AND NATIONAL ORIGINS*

NELSON D. LANKFORD

For much of the nineteenth century, British military medicine offered doctors meager pay, uncertain status, prolonged separation from home, serious risks to personal health, and other unpleasant job-related liabilities. Yet doctors did join the army, and all branches of the military medical service together constituted about a tenth of the total medical profession during the mid-Victorian period. What motivated these doctors to join, and why, especially, did the services attract the unusual blend of nationalities that they did?

The national origins of army doctors, in fact, differed radically from those found in the civilian population and even in the combatant officer corps, and thus present a suggestive clue to understanding the character of British military medicine. Examining the disproportion of non-English doctors attracted to military practice is useful because of the ways it illuminates the motives for joining the service and the subsequent careers of the individuals who chose military medicine.[1] Such an examination, however, also has two broader applications: first, the attraction of large numbers of Irish and Scottish doctors to military service illustrates the effect of limited opportunities at home for many professional men from those countries, and, second, the effect of diverse backgrounds in this specific context suggests some of the tensions and biases associated with

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[1] Service records appear in *Commissioned Officers in the Medical Service of the British Army, 1660-1960*, vol 1: *1660-1898*, by Alfred Peterkin and William Johnston, vol. 2: *1898-1960* by Sir Robert Drew (London: Wellcome Historical Medical Library, 1968) (hereafter cited as *Commissioned Officers*). For the purposes of this essay, national origins were determined by birthplaces compiled from *Commissioned Officers*, 1 and 2, and obituaries in the *British Medical Journal* (hereafter cited as *BMJ*), the *Journal of the Royal Army Medical Corps* (hereafter cited as *JRAMC*), the *Lancet*, and the *Army Medical Services Magazine* (hereafter cited as *AMS Magazine*).

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differences in national origins that could arise in any occupation. In order to explore these topics, this essay will examine the place of military medicine in the range of options open to medical school graduates; the nature of, and explanation for, the peculiar composition of national origins in military medicine; and the effects of nationality on the professional lives and basic career traits of army medical officers.

Medical school graduates had to decide which branch of their profession to enter soon after, if not before, obtaining a license to practice. A few sought junior hospital house posts that, for an ambitious minority, led to the top of the profession. Those who reached elite status could expect to enjoy a prosperous consulting practice and a senior surgeoncy or physicianship at a prominent teaching hospital. The majority of graduates, however, chose the path that led to some form of private general practice. This course usually presented few difficulties for those with family connections or the capital necessary for the purchase of a practice. The incumbent who sold his practice could encourage his patients to transfer their loyalties to the purchaser, and the recent graduate taken into the practice of his father, uncle, or older brother could rely on the invaluable ties of kinship to win for him the acceptance of patients. The less fortunate sometimes settled for low incomes as assistants to established GPs, in the hope of eventually succeeding to the practice. Others, more daring, gambled that they could carve out new practices, especially in growing industrial towns, and attract enough patients before their creditors foreclosed.[2]

Those medical graduates lacking the advantages of connection and money frequently turned to one of a variety of salaried appointments, either part- or full-time. During the mid-Victorian period pressure from the Poor Law Board and reformers gradually forced parish boards of guardians to expand publicly funded medical assistance for the poor, and by the 1870s the local boards had appointed several thousand poor law doctors. By the same decade the appointment of district Medical Officers of Health also became more common. These public health appointments were less numerous than poor law positions but paid more. Contract medicine included yet another prevalent form of salaried medical practice. Friendly societies, fraternal organizations, and workingmen's clubs established medical plans under which members paid small subscriptions entitling them to treatment by the doctor engaged by their organization. Contract practice thus reduced the doctor to the position of an employee of the contracting body, but the willingness of medical men to engage in such work indicates its value to those trying to establish themselves and make a living as medical practitioners.[3]

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[2] For a discussion of the choices of practice available to medical graduates, see M. Jeanne Peterson, *The Medical Profession in Mid-Victorian London* (Berkeley and Los Angeles: University of California Press, 1978), chapter 3.

As an alternative to the positions in civilian life mentioned above, doctors could also hold full-time, salaried appointments in the British army, the Indian army, and the Royal Navy. Providing medical care for the whole British army, the Army Medical Department (AMD) constituted the largest of the three branches of military medicine for much of the nineteenth century.[4] After Waterloo the department's peacetime complement of doctors stayed at about five hundred, then doubled with the Crimean War, and remained at roughly one thousand until 1914. The AMD assigned its doctors either to the staff, which supplied a pool of officers for large, general military hospitals and other special duties, or to specific regiments, each of which maintained several doctors. Because AMD doctors worked wherever the British army garrisoned its soldiers, foreign assignments increased with the growth of the empire, and, by the end of the century, army doctors could expect to spend over half of their careers overseas.

The Indian Medical Service (IMS) employed officers to care for the Indian army, which, in contrast to the all-European British army, employed both British officers and Indian NCOs and soldiers.[5] Although the British army served at home and in all parts of the empire, including India, the Indian army served only on the subcontinent. By definition, then, IMS doctors spent their entire careers away from Britain, whereas their AMD colleagues at least alternated between colonial and home tours. But the IMS boasted advantages that, in the opinion of many of its doctors, more than compensated for constant service abroad. Subject to recall in emergencies, doctors could transfer after a few years from the military to the civil branch of the IMS, where lucrative private practices among the growing Anglo-Indian population were theirs for the asking.

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[3] For varieties of civilian salaried practice, see *Ibid.*, pp. 110-18 and Jeanne L. Brand, *Doctors and the State· The British Medical Profession and Government Action in Public Health, 1870-1912* (Baltimore: Johns Hopkins Press, 1965), pp. 85-91, 108-12, 195-99.

[4] See Richard L. Blanco, *Wellington's Surgeon General: Sir James McGrigor* (Durham, N.C.: Duke University Press, 1978) and Sir Neil Cantlie, *A History of the Army Medical Department*, 2 vols. (Edinburgh: Churchill Livingstone, 1974).

[5] See Dirom Grey Crawford, *A History of the Indian Medical Service, 1600-1913*, 2 vols. (London: W. Thacker, 1914).

The medical service of the Royal Navy provided a third variety of full-time, salaried military practice open to British doctors. Medical officers worked on board ship and in naval hospitals in the United Kingdom, the largest being at Portsmouth, Plymouth, and Chatham, and in the colonies, the largest being at Malta.[6] This distribution of assignments placed an even larger portion of RN doctors away from home, either on ship or at a hospital abroad, than was true of AMD doctors. Further, because of their location, naval doctors did not enjoy the opportunities for private practice on the side that those in the IMS had or even, to the limited extent to which it was available, as those in the AMD.

The three medical services offered similar military and bureaucratic environments and, with regard to the special training they required, even shared a common educational institution. After the Crimean War the government established a competitive examination for prospective army doctors and an Army Medical School to provide instruction in the special applications of medicine encountered in military practice. The school opened in 1860 in temporary quarters at Fort Pitt, Chatham, but moved in 1863 to a new hospital at Netley, near Southampton, where it remained until superseded in 1905 by the present Royal Army Medical College in London. Throughout the Netley period applicants for both AMD and IMS took the course there, and for a time candidates for medical commission in the Royal Navy studied alongside them, until a separate naval program began at Gosport.[7]

The doctors who decided on military medicine instead of other types of practice came from all over the United Kingdom, but the particular distribution of their collective national origins invited frequent comment. The evidence bears out the widespread impression among nineteenth-century observers that Scottish and Irish doctors together numerically dominated the army medical staff, the former more prominently in the early decades, the latter after mid-century. Indeed, of the nationalities in the AMD, the Scots were the most numerous during the early part of the century. Of those doctors still serving in 1859 who had joined at least fifteen years earlier and whose birthplaces are known, one-half were

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[6] See *Medicine and the Navy, 1200-1900,* 4 vols. (Edinburgh: E. and S. Livingstone, 1957-63), vol. 3, *1815-1900,* Christopher Lloyd and Jack L. S. Coulter (1963), p. 213.

[7] For contemporary accounts, see Alfred A. Woodhull, *Observations upon the Medical Department of the British Army made in 1891* (St. Louis: Burton and Skinner, 1894) and Richard C. Dean, *Naval Medical Schools of France and England with Observations on the Naval Hospitals of Toulon* (Washington, D.C.: Government Printing Office, 1876)

Scots.[8] After about 1845, however, Irishmen quickly overtook the Scottish lead and, in fact, took over one-half of new medical commissions during the 1860s and 70s (see appendix 2). Thus, together, the Scots and the Irish comprised a large majority of the doctors of the AMD, and the English element, in contrast, did not reach above one-third before the 1880s (see appendix 1).

This distribution of nationalities was not peculiar to the AMD alone. Scottish doctors, for example, took nearly one-half of the commissions granted in the IMS during the early part of the century. The Royal Navy also provided careers for many non-English medical officers, and, of almost five hundred doctors commissioned between 1870 and 1880, one-quarter were Scots and one-half were Irish. Finally, large numbers of non-English doctors joined the separate colonial medical services, which offered a work environment similar to that of the military services through their bureaucratic, salaried practice abroad.[9]

Medical education in Scotland and Ireland both reflected and promoted the continued attraction of military medicine for students from those countries. In 1806, for example, the government established a chair of military surgery at the University of Edinburgh. Sir George Ballingall (1780-1855), a noted surgeon and medical author, held the position with distinction for many years, and in 1846, another doctor, Thomas Tufnell (1819-1885), began a similar course supported by public funds at the University of Dublin.[10]

The history of the Royal College of Surgeons of Ireland (RCSI) further illustrates the military connection with medicine there. At the end of the eighteenth century the college graduated mainly candidates for army and navy commissions because of the demand for medical officers during the French wars. The college's second charter, conferred in 1828, indirectly underscored the prominence of its military contribution by praising it for "promoting the welfare of the nation at large, and particularly by providing a sufficient number of properly educated surgeons, as well as for the service of the public in general as for that of our Army and Navy."[11] At the end of the century one Dublin practitioner referred to the whole of Ireland as "the great recruiting ground for this service [the AMD]," and another boasted that about one hundred of the approximately nine hundred serving army doctors had been pupils of his at the RCSI.[12]

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[8] Of the 206 medical officers still serving in 1859 who had joined the AMD at least fifteen years earlier, the national origins are known for only 39, or 18.9 percent. Although fragmentary, this evidence suggests the probable pattern in the early Victorian period: 23.1 percent English, 51.3 percent Scottish, 23.1 percent Irish, and 2.6 percent colonial. Compiled from *Commissioned Officers*, 1, and obituaries in *BMJ*, *Lancet*, *JRAMC*, and *AMS Magazine*.

[9] Surgeons commissioned into the IMS in the period 1804-36 were 34.8 percent English and Welsh, 48 7 percent Scottish, 10.3 percent Irish, 5.3 percent colonial, and 0.9 percent foreign. Compiled from Dirom Grey Crawford, *Roll of the Indian Medical Service, 1615-1930* (London: W. Thacker, 1930), p. 649; see also, Lloyd and Coulter, *Medicine and the Navy*, p. 20 and L. H. Gann and Peter Duignan, *The Rulers of British Africa, 1870-1914* (Stanford: Stanford University Press, 1978), p. 299.

[10] Blanco, *McGrigor*, p. 166; Cantlie, *Army Medical Department*, 2: 434.

A comparison of the AMD with the United Kingdom census shows even more forcefully the disproportion of non-English doctors in military medicine suggested by the preceding evidence. With the precipitate drop in Irish population and the stagnation of the small Scottish share of the total population, the central trend in British demography was the steady rise in the share of England and Wales, from about three-fifths in 1841 to almost eight-tenths in 1911. But at no time did the composition of nationalities in military medicine reflect the distribution in the total population. In 1851, for example, while only one-third of the population lived in Scotland and Ireland, some three-fourths of the doctors in the AMD came from those countries. During the late nineteenth century the non-English proportion of the army medical service declined, but so too did the non-English proportion of the total population. Thus, even in 1911, when Scotland and Ireland accounted for only one-fifth of the population, Scottish and Irish doctors still accounted for one-half of the AMD (see appendix 3).

The particular distribution of nationalities in army medicine prompted questions about its cause. In 1866 Netley Professor Edmund Parkes commented that "an Irishman or a Scotchman will be as good, if not better, than an Englishman; but one sees that England with a very considerable number of medical students is furnishing very few to the Army Medical Department, and there must be some reason for it."[13] The explanation lies partly in the reasons motivating choice of practice. Lack of purchase money and family medical connection tended to minimize possibilities for private practice and made the army, like the civilian forms of salaried and contract practice, a relatively attractive choice for many doctors of all national origins. Many of them would probably have agreed with Leonard Bousfield (1876-1956), who wrote in later years that his decision to join the army medical service in 1904 "was dictated by the fact that I was not able to lay my hands on sufficient capital to start in the kind of practice I would have fancied in civilian life and I felt too that it would be useful to have the opportunity of seeing something of the world at the public expense."[14] The circumstances of others undoubtedly paralleled those of Robert Farquharson, who recalled that, having obtained his M.D. in 1858, "private practice was put on one side, for my father had been retired too long to enable me to pick up the threads, and I was too young, both actually and in appearance, to hope to do much in that line at present. So, in family conclave, the Army was fixed upon, and I went up to London to face the examiners. . . ."[15]

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[11] J. D. H. Widdess, *The Royal College of Surgeons in Ireland and Its Medical School, 1784-1966* (Edinburgh: E. and S. Livingstone, 1967), pp. 45-46 See also, pp. 53, 55, 95-96.

[12] Copy of minutes of meeting between British Medical Association deputation and War Office officials, 15 May 1893, War Office papers 32/6398, Public Record Office, London (hereafter cited as W. O.).

[13] Great Britain, *Parliamentary Papers*, vol. 60 (*Accounts and Papers*, vol. 22), "Report of the Committee Appointed to Inquire Into the . . . Position of the Medical Officers of the Navy and Army . . . ," 1866, p. 98 (hereafter cited as "Position of Medical Officers").

Even more important than individual motives in influencing career choice, was the difference between Scottish and Irish medical graduates and English medical graduates in the varieties of practice available. This explains the Scottish and Irish preference for some form of military rather than civilian salaried practice. Having an increasing majority of the British population, England boasted the majority of the civilian varieties of salaried and contract practice, and the penniless English graduate without influential medical ties thus enjoyed a broader range of options than his Scottish and Irish contemporaries. With these types of practice less readily available to them at home, Scots and Irishmen found military salaried practice more appealing. For them the AMD's modest attractions—a guaranteed salary, a captive patient clientele, and a pension—proved powerful inducements that counterbalanced the well-publicized deficiencies of army practice. Thus, Thomas Longmore, professor of military surgery at Netley, wrote in 1864 that it was mostly "the poorer students of Ireland and Scotland" who sought medical commissions because they realized that English doctors could find forms of practice at home more to their liking and, therefore, were not applying for the army in large numbers.[16] Perhaps because the availability of army commissions solved the problem of career choice for so many Irish and Scottish doctors, one observer claimed in 1859 that military medicine was held in higher regard in Scotland and Ireland than in England.[17]

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[14] Leonard Bousfield, *Sudan Doctor* (London: Christopher Johnson, 1954), p. 53.

[15] Robert Farquharson, *In and Out of Parliament. reminiscences of a varied life* (London: Williams and Norgate, 1911), p. 84.

[16] Memorandum by Thomas Longmore, [c. 31] August 1864, Longmore MSS LP 21/5b, Muniment Room, Royal Army Medical College, London (hereafter cited as RAM College).

[17] *Colburn's United Service Magazine, and Naval and Military Journal*, part 3 (September to December 1859), p. 520.

Scottish and Irish doctors wishing to join the army first encountered a distinction between themselves and the majority of their English counterparts at the AMD's London entrance examination. The extended period of examination required a serious financial risk for poor medical students who did not live in London.[18] This burden did not discriminate, of course, on the basis of national origin, only on the basis of residence at the time of the examination. In practice, however, it penalized nearly all Irish and Scottish applicants and usually posed fewer problems to English applicants, most of whom studied in London. Expressing a typical reaction, one doctor wrote to the *British Medical Journal* in 1882 that "many of the sixty-five candidates [for the AMD examination], including myself, came from Ireland, and had to live in London nearly a fortnight at considerable expense, besides the cost of the journey both ways and loss of time."[19]

The composition of the examination's panel of graders elicited more serious charges. Scottish and Irish medical corporations protested the monopoly of the panel by members of London institutions, and the issue even reached the House of Commons. Dr. J. E. Kenny, MP for Dublin, College Green, asserted that there was "a belief, wide-spread, in medical circles in Ireland, that Irish candidates for the Army Medical Service will not receive fair consideration under such a system [of examination]."[20] The council of the RCSI considered the panel's composition prejudicial to students who did not study in London and suggested that it was designed to lure those considering the army as a career away from schooling in Dublin, Glasgow, and Edinburgh. The council requested that, "instead of binding itself to a particular licensing body or a particular teaching centre, the War Department should constitute the board by selecting examiners in fair proportion from all the parts of the teaching centres of the kingdom."[21]

Other critics took the examination system to task for entirely opposite reasons, revealing their biases in the process. Although non-English doctors had dominated the department long before the competitive examination, some observers criticized that procedure for burdening the AMD with a permanent non-English majority. One correspondent to the *British Medical Journal* argued in 1878 for the nomination of candidates for commission by the various medical corporations, presumably in some sort of quota system: "Everyone who knows the Army Medical Department intimately is aware that there is in it too great a preponderance of surgeons from one particular part of the kingdom, and this defect can be readily put right if only nomination take the place of competitive examination."[22] This same conspicuous presence of Irishmen gave the disgruntled a target for blame during periods of discontent in the service. One critic even went so far as to claim in 1896 that "the frightening off of the English and Scotch [medical] graduates has caused an undue proportion of Irishmen to be found in the department, and it is strange that the nationality loudest in the cry of grievances have so eagerly stepped into the vacancies in the service."[23]

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[18] See, for example, R. Gilham Thomsett, *Reminiscences of People and Places* (London: Arthur H. Stockwell, n.d.), pp. 74-77

[19] *BMJ,* 1 April 1882: 488.

[20] *Ibid*., 6 May 1893: 971-72; Great Britain, Parliament, *Parliamentary Debates*, 4th ser., vol. 10 (1893), pp. 1314-15 and vol. 16 (1893), pp. 1704-05 (hereafter cited as *Parl. Deb.*).

[21] *BMJ*, 6 May 1893: 971.

Differences in national origins assumed personal dimensions when doctors who passed the entrance examination began daily contact with their colleagues at the Army Medical School at Netley. The account of one Irish doctor's brief association with the AMD in 1894 illustrates the potential for trouble. According to Dr. J. J. Clancy, MP for Dublin County, a certain Dr. Corbett had been a candidate at Netley whom the school had forced to resign because of a minor infraction of military discipline by him and several other candidates. Corbett was the only one of the candidates involved required to resign, because, Clancy alleged, he was the only Irishman and Catholic in the group.[24] Although the government and the school authorities hotly disputed Clancy's interpretation, his account suggests that the AMD's desire to inform its officers with a self-sustaining, comradely mentality may sometimes not have totally immunized it against the prejudices of society at large.

Once they had left Netley for the routines of daily life in the army, non-English doctors found that differences in national origins could jeopardize their relations with English combatant officers. This could mean serious problems: since army doctors usually worked individually or at most in small groups, their relationship with combatant officers comprised an important part of their daily lives. William Munro (1822-1896) discovered this when he encountered a noticeably cool reception in one of the regiments he joined and later received the following explanation from one of the unit's combatant officers: "Well, you must understand that we have had one or two *queer* Scotch doctors in the regiment, and, seeing from your name that *you* were Scotch, I thought it better to wait and see what sort of fellow you were before we should be acquainted."[25]

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[22] *Ibid.*, 5 October 1878: 539.

[23] *Ibid.*, 29 February 1896: 566-67.

[24] *Ibid.*, 21 July 1894: 161.

Differences in national origins also influenced existing animosities between medical and combatant officers. In the early nineteenth century army doctors began to question their long-standing inferior status in the military hierarchy and to demand the same respect and consideration as any other officers. A good many unsympathetic combatant officers scorned what one called "this everlasting doctor question," and throughout the Victorian period suspicion, resentment, and overt hostility characterized relations between the two groups.[26] In this context, the high visibility of Scots in the AMD in the early nineteenth century and of Irishmen later on provided an easy target for the prejudices of English combatant officers, already unfriendly because of interprofessional friction.

Prejudices, of course, existed among combatant officers of different backgrounds. In the AMD, however, with its composition of backgrounds so much at variance from that of the combatant branches, the sources and opportunities for prejudice against army doctors were more prevalent. In 1878, for example, almost three-quarters of those holding combatant commissions were of English birth, while little more than a quarter were Scottish or Irish. In contrast, in the same year less than one-third of army doctors were English and three-fifths were Scottish and Irish. Even the ranks of the noncommissioned officers and men who were their patients included far fewer Irishmen and Scots.[27]

Although they were separate from the regular AMD until the end of the century, medical appointments to the prestigious Guards regiments reveal another effect of differences in nationality among army doctors. The Guards possessed the highest status in the social hierarchy of regiments and could enjoy their prestige in England, free for the most part from long years of colonial exile. Professors at London medical schools, otherwise disdainful of military service, made an exception in the case of Guards appointments. Sir Benjamin Brodie, a prominent London teacher and consultant, said in 1857 "I do not believe that I have ever recommended any of our better class of students at St. George's Hospital to go into the army, except into the Guards, where they have some advantages which they do not possess elsewhere."[28] Given conditions in these most social of regiments, the select fraternity of Guards doctors not surprisingly included few Scots and Irishmen: Englishmen dominated Guards medical appointments even while they constituted a minority in the AMD as a whole.[29]

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[25] William Munro, *Records of Service and Campaigning in many lands*, 2 vols. (London. Hurst and Blackett, 1887), 1. 52-53

[26] Adjutant General to P.U S., [draft], 24 June 1893, W.O. 32/6398.

[27] Combatant officers in 1878 were 72.6 percent English and 27.4 percent Scottish and Irish while army doctors were 28 6 percent English and 60 0 percent Scottish and Irish. Figures on combatant officers were compiled from Great Britain, *Parliamentary Papers*, vol. 43 (*Accounts and Papers*, vol 2), "Return of the Number of English, Scotch, and Irish Non-Commissioned Officers . . . [and] Commissioned Officers," 1878-79, p. 7. National origins of medical officers compiled from *Commissioned Officers*, 1, and obituaries in *BMJ*, *JRAMC*, *Lancet*, and *AMS Magazine*. For noncommissioned officers and men, see H. J. Hanham, "Religion and Nationality in the Mid-Victorian Army," p. 176, in M. R. D. Foot, ed., *War and Society· Historical Essays in honour and memory of J. R. Western, 1928-1971* (New York: Barnes and Noble, 1973).

Some of the department's leaders, and its supporters in private life, revealed in their comments on the state of army medicine considerable unease of their own regarding the conspicuous influx of non-English doctors. Florence Nightingale privately expressed her feelings on the matter in a letter in 1864: "I hear, from all hands, [that] the A. M. D. is filling with Irishmen. They can pass the Examination. But that is no test for an Irishman."[30] Professor Longmore stated publicly, and with more circumspection, that the AMD did not attract a large enough proportion of doctors from the London medical schools, leaving the implication that, in his opinion, it attracted too many non-English doctors. His colleague, Professor Parkes, spoke more directly: "I do not in the least object to the Irish. I only want to see more of the English [join the AMD]."[31]

The national origins of medical officers thus became involved in the questions sometimes raised about the expertise of the doctors who chose army practice. The issue of quality was an important one because warnings about adverse conditions of service hurt the AMD's efforts to recruit the best doctors, and the department's leaders periodically worried about the number of "civil failures" and mediocrities that the service attracted.[32] For the AMD, moreover, the qualities for being a good doctor were not necessarily the same as those for being a good army officer. Despite the difficulties measuring quality, the combined scores of the London entrance and Netley graduating examinations give at least one measure of evaluation. A comparison of these scores with the candidates' backgrounds reveals that Irish doctors collectively occupied a slightly lower average class standing than their English and Scottish peers.[33] The examination results probably explain some of the apprehensions in the AMD hierarchy, at least among the Netley professors, about the disproportion of Irish candidates in the 1860s and 70s.

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[28] Great Britain, *Parliamentary Papers*, vol. 18, (Reports from Commissioners, vol. 1), "Report . . . into the Regulations Affecting the Sanitary Conditions of the Army . . ." 2318, 1857-58, p. 17.

[29] English doctors constituted 62.7 percent of Guards doctors but only 36.1 percent of those doctors who never served in a Guards regiment. Scottish and Irish doctors constituted only 25.4 percent of Guards doctors but 51.0 percent in the rest of the AMD. Guards affiliation and national origins compiled from *Commissioned Officers*, 1 and 2 and obituaries in *BMJ, JRAMC, Lancet*, and *AMS Magazine*

[30] Florence Nightingale to Capt. Galton, 3 November 1864, Additional MS 45762, folios 237-38, British Library, London.

[31] "Position of Medical Officers," p. 98 Another observer suggested that the military medical service did not attract the ablest medical graduates and gave as proof the fact that most applicants were Irish. Richard Quain, *Observations on Medical Education* . . . (London: Walton and Maberly, 1865), p. 33 and note. Cited in Peterson, *Medical Profession*, p. 125.

The Netley examination scores, however, did not explain the more deeply rooted social and class prejudices held by some against Irish doctors. The slightly lower Irish standing mentioned above was an aggregate figure that few outside the Netley faculty noticed. Other considerations were frequently more important to some observers, and the consistently high academic achievement of Scottish doctors did not protect them from social slights. One English doctor, for example, described most of his colleagues as Scots and Irishmen of the most unpolished sort who, at the beginning of their service, even had to be taught table manners.[34] Such attitudes, of course, did not follow strict national lines; Scots sometimes echoed English disdain for Irishmen and differences in social and religious background divided the Irish. Anglican Irish army doctors, for example, probably experienced fewer difficulties in their relations with English officers than did Catholics. Nevertheless, the Scottish and Irish origins of the majority of army doctors often subjected them to slights based upon little more than their national origins.

The careers of individual army doctors varied widely, but one important generalization can be made—whatever the differences in attitude that may have existed between individual officers of different national origins, such circumstances did not influence the paths of promotion and access to positions of authority and power in the department. Because seniority governed promotion in the lower ranks, officers advanced strictly according to the length of their full-pay employment. Neither did discrimination based upon nationality appear at this level of the department in assignments to the less desirable staff positions and the more prestigious regimental posts.[35]

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[32] Thomas Longmore to Thomas Stone, 2[?] February 1864, Autographed Letters, Library of the Royal College of Surgeons of England, London.

[33] Doctors in the top half of the combined examination scores were 43.4 percent English, 13 8 percent Scottish, and 42.8 percent Irish. Those in the bottom half were 38.0 percent English, 9.5 percent Scottish, and 52 6 percent Irish. These figures are derived from the 601 officers who were born in England, Scotland, and Ireland, who were commissioned in the period 1860-95, and who took both examinations. Compiled from records of the Army Medical School, Curator's Room, RAM College.

[34] Cantlie, *Army Medical Department,* 1: 438.

If there had been any discrimination in the AMD based on national origins it would surely have affected promotion into the administrative elite, the officers of which were chosen ostensibly by merit rather than seniority. An examination of promotion patterns, however, reveals no pro-English bias in the number of years it took doctors to rise to administrative rank or in the proportion of the various national groups who did so. On the contrary, the career patterns of English, Scottish, and Irish doctors show that officers in each group had almost identical chances to reach administrative rank.[36] Also, among Irish-born doctors, those who graduated from Irish universities with more pronounced Anglican ties, those who held degrees from universities that appealed more to Catholics and Nonconformists, and those who held medical licenses but no university degrees differed little in promotion patterns.[37]

A few Scottish and Irish army doctors achieved scientific recognition, such as David Bruce (1855-1931), for example, who discovered the causes of Malta fever and African sleeping sickness, and others attained fame for administrative skill, such as Dubliner Alfred Keogh (1857-1936), who directed the rejuvenated army medical services after the Boer War.[38] But the high rank and honors achieved by the distinguished few were not the lot of the majority of Scots and Irishmen who took medical commissions. For them, as for the great majority of all medical officers, of whatever social or national origins, army service entailed neither administrative responsibility nor research in tropical pathology. Rather, it demanded a routine military variant of general practice treating the ailments of soldiers and their families, making frequent sanitary inspections, examining recruits and the medically discharged, and compiling medical statistics. The average career was more closely akin to that of Alexander McTavish (1836-1916) of Argyllshire who joined the army in 1859, rose in rank to Surgeon Major in the course of his service, and took his pension after twenty-one years in the department or to that of Henry Joseph O'Brien (1841-1916) of County Cork, who joined in 1865 and served for more than three decades without reaching the upper, administrative ranks.[39] Most of these doctors, like their counterparts in civilian general practice, were of ordinary talents, aspirations, and achievements.

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[35] Staff Assistant Surgeons serving as of 1859 were 35.0 percent English and Welsh, 15.7 percent Scottish, 39.6 percent Irish, and 9.6 percent colonial and foreign. Similarly, Regimental Assistant Surgeons in the same year were 35.3 percent English and Welsh, 17.3 percent Scottish, 40.2 percent Irish, and 7.2 percent colonial and foreign. Compiled from *Commissioned Officers*, 1 and obituaries in *BMJ*, *JRAMC*, *Lancet*, and *AMS Magazine*

[36] Of the surgeons commissioned between 1860 and 1889, the proportions of English, Scottish, and Irish officers reaching administrative rank were 19.9, 20.5, and 20.8 percent, respectively. Compiled from *Commissioned Officers*, 1 and 2.

[37] Considering Irish-born medical officers commissioned in the period 1860-1914, of 164 with degrees from Trinity College, Dublin, or the University of Dublin, 25.0 percent reached administrative rank; of 134 with degrees from other Irish universities, 24.6 percent; and of 327 without any Irish university degrees, 24.8 percent. Medical degrees compiled from *London and Provincial Medical Directory* National origins compiled from *Commissioned Officers*, 1 and 2, and obituaries in *BMJ*, *JRAMC*, *Lancet*, and *AMS Magazine*

[38] W. J. Tulloch, "Sir David Bruce: An Appreciation," *JRAMC*, *101*, no. 2 (April 1955): 81-83; *Commissioned Officers*, 1, number 6687.

English and non-English doctors did differ in important aspects of their careers in spite of sharing the same kind of professional lives in the army. Among such traits, the mode by which they ended their service suggests the attraction military medicine had for non-English doctors. In particular, throughout the period between the Crimean and the First World Wars, English army surgeons resigned at a higher rate than their Scottish and Irish colleagues. This held true especially during bad times like the 1860s and 70s when the combination of poor conditions of service and risks to health was at its worst and resignations accordingly became more common. Thus, of those doctors who joined in this period, only 7.5 percent of the Scots and Irishmen resigned, but 13.2 percent of their English comrades did so.[40]

Most army doctors who resigned made their decision after only a few years in the army and before they had lost all contact with civilian medicine. Liverpudlian William Leah (1847-1904), for example, resigned in 1879 before holding his commission a full year, while Frederick Hewett of Twickenham (b. 1851) left in 1878 after less than three years' service.[41] Even so, prospects in civilian practice for former army surgeons were uncertain at best. Military medicine was virtually a separate profession unto itself, and army doctors were not only away from home for much of their careers but also had little contact with civilian medicine even when stationed in the United Kingdom. The higher resignation rate of English medical officers indicates that, in addition to being dissatisfied with the AMD, they may have been hopeful of finding employment in civilian life. This expectation apparently seldom affected non-English medical officers. They knew opportunities at home were scarcer for them than for their English colleagues, hence they turned to military medicine more frequently and gave it up less readily.

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[39] *Commissioned Officers*, 1, numbers 5844 and 6272

[40] Service records and national origins compiled from *Commissioned Officers*, 1, and obituaries in *BMJ*, *JRAMC*, *Lancet*, and *AMS Magazine*. Out of the more than two thousand surgeons who joined the service between 1860 and 1914 and whose national origins are known, only 4.4 percent of the Scots and 3 8 percent of the Irish resigned, compared to 7.4 percent of the English

[41] *Commissioned Officers*, 1, numbers 6672 and 6580.

Other career patterns reinforced the impression that military practice held a stronger appeal for non-English than English doctors, even within the AMD. In particular, Scottish and Irish medical officers tended to serve longer than their English colleagues. They not only resigned their commissions less frequently than English doctors but also tended to wait longer to retire, even after reaching the minimum age for pension. More importantly, because they resigned less often and because they did not tend to retire as early, Scottish and Irish army doctors died in harness more frequently and even at a slightly earlier age. The cost of their greater attachment to military medicine was thus a more prolonged exposure to the health hazards of foreign duty and its consequences.[42]

In examining army surgeons' retirement life, there is a similarity between English and non-English doctors that is most striking. Like other overseas government employees, army surgeons often chose to retire in England, especially in the south. Unexceptional for English doctors, this decision by most Scottish and Irish army doctors marked a final, elected separation from national origins and identity.[43] Aside from climatic reasons, they congregated in the south of England because they had been away from their home districts for many years and consequently lacked strong territorial ties. They chose, quite naturally, to retire where they at least had the company of others lately in some form of overseas service. For many army doctors, as was true of others who worked abroad, of whatever nationality, transient careers had diminished identification with their native lands.

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[42] Among those commissioned in the period 1860-69 who chose the timing of ending their service, that is, did not die in harness or, in a very few cases, were court martialed, Scottish and Irish doctors had a median length of career of 22.0 years compared to 20.0 years for English doctors. For the period 1900-14 the figures were: Scottish and Irish, 26.6 and English, 23.8 years. Among English medical officers commissioned between 1860 and 1914 some 18.6 percent died on active duty, but with Irish medical officers the proportion was 23.6 percent, and with Scottish medical officers, 26.2 percent. The median age at death of those commissioned in the period 1860-89 was English, 67.3 years; Scottish, 62.5 years; and Irish, 64.6 years. Age at death for these categories was available for 268, 76, and 287 medical officers, respectively. In the following decades, as the risks to health sharply declined, there was little difference among English, Scottish, and Irish doctors in their median ages at death. Compiled from *Commissioned Officers*, 1 and obituaries in *BMJ*, *JRAMC*, *Lancet*, and *AMS Magazine*.

[43] Of those commissioned between 1850 and 1869 who served twenty years or more, that is, lived long enough to collect their pensions, some 87.0 percent of the Englishmen died at a location in England. Among Scots and Irishmen the proportion was nearly as high, 76.7 percent and 70.2 percent, respectively, leaving only a small minority who retired and died in their native lands. Compiled from *Commissioned Officers*, 1.

The non-English hegemony in the AMD, which had shifted from the Scots to the Irish by mid-century, weakened by the late Victorian period as English doctors began to look more favorably on army careers than they had in the past. Improvements in income, practice, and pension increased the AMD's attractiveness. Although the length of foreign service had increased with the growth of empire, the risks to health began to decline. Perhaps even more important, increasing competition for medical careers in civilian society made army commissions look more attractive to Englishmen than had been true in the early and mid-Victorian periods.[44]

Despite the increase in the proportion of English medical officers, however, Scots and Irishmen retained a strong relative share of positions in the department (see appendixes 1 and 2). During the two peacetime decades after the First World War, moreover, the combined Scottish and Irish contingent among new medical officers once again surpassed the English element (see appendix 2). Even on the eve of the dissolution of empire, when Scotland and Ireland accounted for a far smaller part of the total British population than they had a century before, the army medical service continued to attract a disproportionate number of officers from those countries.[45] The Royal Army Medical Corps (RAMC), as the medical service was known after 1898, was not without reason sometimes facetiously called the "Royal Irish Medical Corps."

The attraction of non-English doctors to military practice represented a medical version of the traditional appeal of government overseas employment for the Scots and the Irish. Individual circumstances and economic reality in those countries and the specific conditions of army medicine combined to give a sustained, non-English complexion to the military medical service. Even as the army as a whole—officers, NCOs, and men—kept step with changes in the population of the United Kingdom, and became more and more English, the AMD maintained its distinctively non-English character.[46] This pattern influenced in important ways the lives of the individual Scots and Irishmen who chose military practice. The biases of British society at large also affected military life, and non-English army doctors sometimes encountered prejudice because of their origins. Prejudice did not affect promotion in the AMD; yet, at the same time, differences in national origins did influence medical officers' careers. Scottish and Irish medical officers resigned less frequently than their English colleagues and consequently tended to die on active duty more often. Having chosen careers in the imperial bureaucracy and having lost residual national ties, they usually retired in England rather than in their native lands.

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[44] In 1871 there had been one registered practitioner to 1,370 inhabitants in the United Kingdom; by 1900, one to 1,144. Brand, *Doctors and the State*, pp. 148, 199.

[45] In the period, 1946-60, when Scotland and Northern Ireland constituted between 12 and 13 percent of the population of the United Kingdom, Scots and Irishmen constituted 30.7 percent of new medical officers. Compiled from *Commissioned Officers*, 2.

Finally, the relationship between non-English doctors and military employment was a symbiotic one. If the Scottish and Irish affinity for army medicine was a solution to the career needs of individual doctors, it was also vital for meeting the staffing requirements of the empire. Without them the government would have been hard pressed to satisfy the army's medical needs.

APPENDIX 1*

Cross Sections of National Origins in the Army Medical Department

	1860	1880	1900	1914
English	29.8	29.8	41.1	42.1
Scottish	19.0	12.5	9.3	12.4
Irish	42.1	46.1	33.7	31.1
Welsh	1.7	1.7	1.6	1.6
Empire	6.2	8.2	13.4	12.0
Foreign	1.3	1.7	0.8	0.8
Total	100.1	100.0	99.9	100.0

* Compiled from *Commissioned Officers*, 1 and 2, and obituary notices in *BMJ*, *JRAMC*, *Lancet*, and *AMS Magazine*. The national origins were known for 907 (81.1 percent) of the 1119 medical officers serving in 1860; for 648 (68.8 percent) of the 942 in 1880; for 744 (76.4 percent) of the 974 in 1900; and for 1000 (91.2 percent) of the 1096 in 1914.

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[46] For the national origins of NCOs and men, see Hanham, "Religion and Nationality," pp. 161-67, 176-78.

APPENDIX 2*

National Origins of Army Doctors According to Date of Commission

	1845-59	1860-79	1880-99	1900-14	1919-39
English	31.2	27.2	44.0	43.6	33.0
Scottish	17.9	9.2	9.7	12.9	15.8
Irish	41.2	52.3	30.0	29.1	31.7
Welsh	1.3	2.1	1.9	1.8	2.3
Empire	6.9	6.9	13.7	11.5	15.3
Foreign	1.6	2.3	0.7	1.1	1.9
Total	100.1	100.0	100.0	100.0	100.0

* Compiled from *Commissioned Officers,* 1 and 2, and obituaries in *BMJ, JRAMC, Lancet,* and *AMS Magazine.* For the period 1845-59 there were known national origins for 957 doctors (87.2 percent) of the total of 1098 commissioned in that period; for the period 1860-79, 390 (52.0 percent) of the total of 750; for the period 1880-99, 693 (73.9 percent) of the total of 938; for the period 1900-14, 731 (94.7 percent) of the total of 772; and for the period 1919-39, 430 (85.8 percent) of the total of 501.

APPENDIX 3*

Population in the United Kingdom and National Origins in the AMD

	UK			AMD		
	England and Wales	Scotland	Ireland	England and Wales	Scotland	Ireland
1851	65.5	10.5	24.0	24.9**	31.8**	43.4**
1871	72.1	10.7	17.2	32.6	17.3	50.1
1891	76.9	10.7	12.5	45.2	12.6	42.2
1911	79.8	10.5	9.7	49.5	13.4	37.1

* National origins of AMD doctors compiled from *Commissioned Officers,* 1 and 2, and obituaries in *BMJ, JRAMC, Lancet,* and *AMS Magazine.* In order to make the AMD percentages directly comparable to those for the UK, only doctors born in England and Wales, Scotland, and Ireland were considered. Doctors born in the colonies and in foreign countries were excluded. UK population figures taken from census information cited in Walter L. Arnstein, *Britain Yesterday and Today: 1830 to the present,* 2nd ed. (Lexington, Mass.: D. C. Heath, 1971), p. 360.

** These figures represent those AMD officers still in service in 1859 who had been in the department in 1851 and, thus, not the complete number in service in 1851.

THE THROAT DISTEMPER REAPPRAISED

MARY K. MATOSSIAN

In assessing the causes of human mortality in the past, little attention has been given to the role of mycotoxins. To be sure, Galen observed that barley and wheat, attacked by fungi in the course of growth or when wrongly stored, might be harmful. He declared:

> Thus, of the many people who are forced to eat such food in time of famine, some die from a putrid or pestilential fever, others are seized by a scabby (itching) and leprosy-like skin condition.[1]

However, investigators made few studies of mycotoxicoses until 1960. In that year it was discovered that the fungus *Aspergillus Flavus,* living in peanut meal, was responsible for the death of 100,000 turkeys and ducklings. It could also produce compounds capable of causing cancer of the liver in laboratory animals. Thereafter researchers began to explore the possibility that cancer or organ damage might result from chronic ingestion of subclinical amounts of mold toxin.[2] Earlier work by Russians on alimentary toxic aleukia (A.T.A.), a mycotoxicosis observed in the U.S.S.R. between 1932 and 1945 as well as work on other mycotoxicoses, has been reviewed.[3]

It might also be worthwhile to examine the history of public health in the United States and Europe, keeping in mind the possibility that mycotoxicoses were a more important health problem in the past than previously suspected.

Some mycotoxicoses—e.g., ergotism and A.T.A.—may appear under the mask of an acute febrile condition. For this reason, diagnosticians in

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[1] Elinor Lieber, "Galen on contaminated cereals as a cause of epidemics," *Bull. Hist. Med.,* 1970, *44:* 334.

[2] Leonard Stoloff, "Occurrence of mycotoxins in foods and feeds," in J. V. Rodricks, ed., *Mycotoxins and Other Fungal Related Food Problems* (Washington, D.C.: American Chemical Society, 1976), p. 26.

[3] The Russian literature was originally summarized by C. F. Mayer, "Endemic panmyelotoxicosis in the Russian grain belt," *Military Surgeon,* 1953, *113.* 173-189 and 295-315; and D. C. Gajdusek, *Acute Hemorrhagic Fevers and Mycotoxicoses in the Union of Soviet Socialist Republics* (Washington, D.C.: Walter Reed Army Medical Center, 1953). Recent general reviews of mycotoxicoses include *Mycotoxins in Foodstuffs* (Cambridge, Mass.: M.I.T. Press, 1965); *Toxic Microorganisms: Mycotoxins, Botulism* (Washington, D.C.: U.S. Dept. of Interior, 1970); *Mycotoxins and Other Fungal Related Food Problems* (Washington, D.C.: American Chemical Society, 1976); and *Mycotoxins in Human and Animal Health* (Park Forest South, Illinois: Pathotox Publishers, 1977).

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the past have been liable to mistake these diseases for infections, calling them "fevers." Moreover, since many members of the same family may develop the disease at about the same time, diagnosticians have been liable to think the disease to be contagious. The coincidence of symptoms in one family, and in many families in a community, may reflect, instead, a contamination of the common food supply.

For example, a highly mortal epidemic of what was commonly called the "throat distemper" broke out in New England in May, 1735, lasted through 1736, and reappeared subsequently. It first appeared in New Jersey in February, 1735. This disease has been diagnosed as diphtheria, scarlatina (scarlet fever), or as the two diseases occurring at the same time. According to Ernest Caulfield,[4] diphtheria was occurring in the country towns of New Hampshire and eastern Massachusetts, while scarlet fever was occurring in Boston. But there are serious discrepancies between the clinical models of these two diseases and the symptoms of "throat distemper," as carefully described by William Douglass, M.D., in 1736 and 1739. Moreover, Caulfield's theory that the combination of symptoms which appeared represented two different diseases occurring at once rests upon weak arguments and misrepresentation of eyewitness sources (William Douglass and Jonathan Dickinson).

Firstly, Caulfield alleged that the fatality rate in New Hampshire (16-60%) was significantly higher than in Boston (2.8%). Diphtheria has a significantly higher fatality rate (26-49%) than scarlet fever (3.2%). Thus, the disease in New Hampshire was probably diphtheria, he infers, while that in Boston, was scarlet fever. When Caulfield wrote in 1939, no disease had been identified that combined the symptoms of diphtheria and scarlet fever, and which had a widely varying fatality rate. Now, such a disease has been identified.

Secondly, Caulfield asserted that according to Douglass, throat distemper patients in Boston had a skin rash, whereas those in country towns did not. He inferred that the disease in Boston was probably scarlet fever, while in country towns it was diphtheria. This is not an accurate report of what Douglass said. To quote Douglass:

> It (the disease) is generally in so considerable a degree more favourable in Boston, than in the Townships where it first prevailed that many can scarce be persuaded of its being the same Distemper: It is nevertheless essentially the same, *there is no Symptom, even the most malignant that has appeared in New Hamp-*

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[4] Ernest Caulfield, *A True History of the Terrible Epidemic Vulgarly Called the Throat Distemper* (New Haven: Yale Journal of Biology and Medicine, 1939), pp 40-44.

> *shire, but what the like has occurred in Boston.* [italics mine] Perhaps . . . the reasons for its proving more mortal in other Towns, may be . . . that mischievous Practise of using this Distemper with profuse evacuations, whereby the laudable and salutary *cuticular* eruption has been perverted as to be noticeable only in a few, and in these it was called Scarlet Fever . . .[5]

This citation from Douglass is hardly a strong argument for two different diseases. While Douglass noticed a difference in the incidence of skin eruptions in Boston and elsewhere, he did not say that they were *absent* outside Boston, but only "noticeable in a few."

Thirdly, Caulfield could not account for the sudden appearance of the disease in places too far distant, and at times too far apart, to be typical of a contagious disease. In addition, in 1736, why was there an epidemic of throat distemper in New London and none in Groton, just across the river? And in 1740 why was there an epidemic in Cambridge, and not in Boston, again just across the river? As Caulfield himself admits,

> Throughout the subsequent history of the epidemic, the contagion theory occasionally reappears, but every time that it does some contrary evidence arises to overthrow it.[6]

I will now summarize the description of the throat distemper as given by Douglass; Dickinson's account[7] agrees with that of Douglass, but is less detailed. The three most important symptoms which characterize the acute phase of the throat distemper were: 1. An ulcerated and necrotic, painfully sore, throat, with a tendency to cause death by strangulation. 2. Skin eruptions which were bright crimson, miliary, or both; or, sometimes purpuric and sometimes ulcerous. 3. A tendency to bleed, surfacing in the form of hemorrhagic areas on the skin, bleeding from the nose, mouth, and uterus, bloody urine, and bloody or dark stools. Douglass did not distinguish phases in the course of this disease: in his view in 1736, its onset was either sudden, or followed a day or two of mild symptoms. But in 1739 he observed that, "The seminium seems to be hatching some time in the blood before the Distemper notoriously discovers it Self."[8]

The symptoms at the onset of the disease were listlessness, headache, chill, and fleeting pains in back, joints, side, etc. Some patients were nauseated, some vomited. In severe cases there was vomiting, diarrhea, profuse sweating, and a fluttering weak pulse. Many patients complained of a "copperish taste or peppery smart in the throat." During the acute phase of mild cases, the tonsils and uvula became painful, inflamed, and swollen and had some white specks. There was a putrid smell about the patient; the stool was dark and very fetid. Skin eruptions, both a red flush and miliary eruptions, were usually present. The course of the disease was six to seven days.

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[5] William Douglass, *The Practical History of a New Epidemical Eruptive Miliary Fever with an Angina Ulcusculosa* (Boston, 1736).

[6] Caulfield, *Throat Distemper,* p. 20.

[7] Jonathan Dickinson, *Observations on that Terrible Disease Vulgarly Called the Throat Distemper* (Boston, 1740).

[8] Letter of William Douglass to Cadwallader Colden, November 12, 1739, in *The Letters and Papers of Cadwallader Colden,* 2 vols. (New York: N.Y Historical Society, 1918-1937), 2: 197.

In severe cases the acute phase was marked by: 1. Widespread swelling and necrosis in the oral cavity, with difficulty in swallowing and a putrid breath. 2. Skin eruptions of dark red color with large, distinct, pale pustules and sometimes purpuric spots which tended to spread with the least scratch or trauma. 3. Bleeding from the nose, mouth and vagina, bloody urine and stool. 4. The glands in the neck, armpits, and groin might be swollen; swelling of the neck glands together with swelling in the oral cavity might create the danger of strangulation. 5. The blood of the patient appeared abnormal: its texture was "much destroy'd and rendered an incoherent puddle of corruption." 6. Vomiting, diarrhea, and profuse sweating were frequent. 7. There was fever. 8. Pulmonary complications might occur and were ominous. 9. There might be delirium, stupor, convulsions, or epileptic-like fits. 10. There was an ichorous discharge from the nose.

In cases with sudden onset death occurred on the first, second, or third day. In other severe cases symptoms of death or recovery appeared by the seventh day. In some cases there was a sore throat, but no skin eruptions. In a very few cases there was a skin eruption, but no throat necrosis, only swelling and inflammation. Many who died early of what Douglass called "a necrosis" had no throat symptoms.

The moribund patient complained of oppression and stricture in the upper chest, breathed with difficulty, and had a deep hollow hoarse cough. Death by strangulation occurred in only about 10% of mortalities; the other deaths were blamed on "fever," "necrosis," and consequential ills.

In Boston about 4000 persons had this disease between August, 1735 and May 1736—about 25% of the total population. Of these, about 114 died. In rural areas mortality was much higher, no less than one case in six and reaching as much as one case in three. Of the 71 fatal cases attended by Douglass personally, only nine were over the age of fourteen. No estimate is available of the age range of persons sick with the disease.

In his 1736 account of the throat distemper Douglass denied the existence of relapses; but by 1739, when he wrote a description of the disease to Cadwallader Colden, he had changed his mind, and declared that there were some second seizures after a year or two. Jonathan Dickinson, reporting on a similar epidemic in New Jersey, said that relapses could occur as often as four times in a year. Relapses are not typical of a contagious infectious disease.

Persons who were well-nourished were less susceptible to the throat distemper. Douglass believed that mortality was higher in rural areas because the diet there included coarse food and salt pork, and so psoriasis was endemic. He also blamed high mortality on the presence of lowland "damps" in the vicinity of woods and ponds, citing the high incidence of "rot" among sheep in such areas.

Douglass also expressed the opinion that the "throat distemper" was not contagious, observing that practitioners attending the sick did not infect themselves or their families.

The throat distemper first appeared in Kingston, New Hampshire, on May 20, 1735. From Rev. Jabez Fitch we learn that in the state of New Hampshire between May, 1735 and July, 1736, a total of 984 persons died of the disease, of which 800 were children under ten.[9] The epidemic appeared in Boston in the fall of 1735 and peaked around March, 1736. In New London, Connecticut, it appeared in May, 1736, peaked in August through October, and lasted until the end of the year.[10] There were outbreaks in Maine in 1737 and 1738.[11] Dickinson reported an outbreak in New Jersey in 1735.[12] In Stratham, New Hampshire, an outbreak occurred in 1742.[13] Other visitations followed.[14] The most northern outbreak was at lat. 44° N, and the focal area around lat. 43° in 1735-1736.

Weather conditions in New England at the time may be ascertained from the diary of Joshua Hempstead of New London. The winter of 1734-1735 was mild, with alternating freezing and thawing. The spring of 1735 was wet and chilly, and crops were late in ripening. The winter of

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[9] Jabez Fitch, *An Account of the Numbers That Have Died of the Distemper of the Throat Within the Province of New Hampshire* (Boston, 1736).

[10] Joshua Hempstead, *The Diary of Joshua Hempstead* (New London: New London Historical Society, 1901), pp. 303-313.

[11] William Willis, ed., *Journals of the Rev Thomas Smith and the Rev. Samuel Deane* (Portland, Maine, 1849), pp. 85-89.

[12] Jonathan Dickinson, *Throat Distemper,* p. 1.

[13] Samuel Lane, *A Journal for the Years 1739-1803* (Concord, N.H.: New Hampshire Historical Society, 1937), p. 65.

[14] John Kearsley, *Observation on the Angina Maligna, or, the Putrid and Ulcerous Sore Throat* (Philadelphia, 1769).

1735-1736 was also mild, with alternating freezing and thawing, as was the winter of 1741-1742.[15]

In England disease outbreaks with the same group of symptoms appeared at about the same time as those in America. In April, 1734 and again in March, 1735 Dr. John Huxham of Plymouth briefly described similar outbreaks.[16] He associated the disease with generally wet weather and mild winters. John Fothergill, M.D. of London described cases with similar symptoms from 1739 to 1746.[17] Huxham described an epidemic of this disease in Edinburgh in 1752, associating it with wet, cold spring weather and a bad grain harvest. He noticed that the ichorous discharge from the nostrils of some patients would ulcerate the skin both of the patients and the nurses who attended them.[18] Dr. John Johnstone described an epidemic which broke out in Worcester in April, 1756 after a mild, rainy winter with alternate freezing and thawing, in a time of shortage of grain and fruit. He said poor families living in damp houses on low, fenny land were more likely to suffer. Morbidity was greatest among persons aged ten to fifty years.[19]

A number of possible diagnoses of "throat distemper" may be ruled out. The first is a diagnosis of diphtheria. Diphtheria is characterized by a membrane growing in the throat that may cause strangulation; but throat ulceration is unusual. Skin lesions occur in diphtheria but only in tropical areas, and only when the skin is broken by a wound or burn. Bleeding from various sites is not typical of diphtheria. In scarlatina, or scarlet fever, another possible diagnosis, a sore throat and crimson rash occur. But ulceration of the throat, and the tendency to bleed, are absent. In Crimean hemorrhagic fever, which is caused by a tick-borne virus, there are throat symptoms and bleeding, but not the characteristic skin eruptions and no tendency to strangulation. Turning to non-infectious diseases, the symptoms of aplastic anemia of various etiologies (in about half the cases, unknown) are similar to those of the "throat distemper." But this is not an epidemic disease, and mortality from it is higher among adults than children.

The most probable diagnosis of the group of symptoms known as the "throat distemper" is an epidemic, non-contagious, non-infectious disease known as alimentary toxic aleukia (A.T.A.), identified to date only in the Soviet Union as occurring among humans. This is a form of fungal poisoning, or mycotoxicosis. Both in the United States and the Soviet Union a strain (T-2) of the fungus *Fusarium sporotrichiodes* (Raillo taxonomic system, U.S.S.R.) or *Fusarium tricinctum* (Snyder and Hansen taxonomic system, U.S.A.) has been isolated and found to produce a potent trichothecene toxin (T-2 toxin) capable of causing the symptoms of A.T.A. in laboratory animals.[20]

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[15] Hempstead, *Diary*, p. 282 ff.

[16] John Huxham, *Observations on the Air and Epidemic Diseases*, 2 vols. (London, 1759), 1. 126-139.

[17] John Fothergill, *An Account of the Sore Throat Attended with Ulcers* (London, 1748).

[18] John Huxham, *Dissertation on the Malignant Ulcerous Sore Throat* (London, 1757).

[19] James Johnstone, *An Historical Dissertation Concerning the Malignant Epidemic Fever of 1756* (London, 1758).

The course of this disease has three stages, not including convalescence.[21] In the first stage, usually lasting three to five days, the individual experiences a burning or "peppery" sensation in the mouth shortly after eating food prepared from grain containing the toxin. This grain may be wheat, rye, oats, buckwheat, barley, corn, or millet; in Russia, millet and wheat are the most likely to be toxic. The peppery sensation in the mouth is the direct result of the action of the toxin on the mucous membranes. It may continue into the second stage. Nausea, vomiting, and diarrhea may occur, and in more severe cases, headache and dizziness are symptoms and also occasionally convulsions and circulatory failure.

If consumption of the toxic food ceases, the symptoms subside in two or three days; but if consumption continues, the mild symptoms disappear in five to nine days and the disease enters a second, clinically quiescent, period, usually lasting three to four, or sometimes two to eight, weeks. If consumption of the toxic food ceases during the second phase, complete recovery is usual. But if consumption continues, the third or acute phase ensues abruptly.

In the third, or acute, phase, lasting five to twenty days, A.T.A. masquerades as an acute febrile disease. These characteristic symptoms appear: 1. Ulceration and necrosis in the oral cavity, with pain in swallowing and a putrid odor emanating from the mouth. 2. Skin eruptions: first, red to dark red hematomous spots, later becoming larger and confluent. The slightest trauma causes them to increase in size and change from bright rosy red to violet. In some cases the rash is made up of black spots the size of a rice grain, combined with blisters and multiform reddening. Areas of necrosis may appear on lips, nose, jaws, and fingers. 3. Bleeding: this may occur in retina, heart, lungs, liver, kidneys, stomach, intestines, suprarenals, thyroid gonads, uterus, and sympathetic ganglia, surfacing as the vomiting of blood, black or bloody stool, bloody urine, bleeding from nose, vagina, etc. 4. The regional lymph node areas are swollen, especially the submandibular and cervical areas. Swelling in the oral cavity and neck, producing stenosis of the glottis, causes death by strangulation in about 30% of mortalities. 5. The blood of the patient is abnormal: there is leukopenia, granulopenia, and relative lymphocytosis. The leukocyte count may drop to 100 per cubic millimeter; erythrocyte count to one million cells or less per cubic millimeter. Hemoglobin may drop to 10%. Thrombocyte count drops to 25,000 with values as low as 3000-5000 per cubic centimeter. Sedimentation rate increases 70-90 millimeters at the end of one hour, mostly occurring during the first thirty minutes. 6. Blood pressure falls, averaging 80/50 in adults. Pulse is weak and increases to 180 per minute. 7. The temperature of the patient is 102-104°F. 8. Pulmonary complications occur frequently. The pneumonic condition may be aggravated by mixed infections. 9. Disorientation, depression, somnolence, meningism, and symptoms of encephalitis may occur in severe cases.

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[20] E. B. Smalley, W. F. O. Marasas, F. M. Strong, *et al*, "Mycotoxicoses associated with moldy corn," in *Toxic Microorganisms: Mycotoxins, Botulism,* (1970), 163-175, p. 167; N. R. Kosuri, E. B. Smalley, and R. E. Nichols, "Toxicologic studies of Fusarium tricinctum (Corda) Snyder et Hansen from moldy corn," *Amer. J. Vet. Research,* 1971, *32*· 1843-1850; A N. Leonov, "Current view of the chemical nature of factors responsible for alimentary toxic aleukia," in *Mycotoxins in Human and Animal Health,* (1977), pp. 323-328, B. Yagen, A. Z. Joffe, P. Horn *et al.*, "Toxins from a strain involved in A.T.A.," in *Mycotoxins in Human and Animal Health* (1977), pp 329-336.

[21] Mayer, "Endemic panmyelotoxicosis," and J. Forgacs and W. T. Carll, "Mycotoxicoses," *Advances in Veterinary Science*, 1962, *7*. 273-382.

In 71% of all Russian A.T.A. cases, both hemorrhagic and necrotic symptoms occurred; in 19% only necrotic systems occurred; while 7% only had hemorrhagic symptoms. The remaining 3% of cases were labelled simply "toxic."

Mortality among patients less than ten years of age was 40-50%; in those aged ten to nineteen, 8-10%. In 80% of cases death occurred during the third phase, usually on the fourth day. Another 15% died from complications or recurrences. Only 5% died in the early stages. Death by strangulation occurred in about 30% of the mortalities.

The average age of the sick was usually eight to fifty years. (Morbidity from throat distemper is unknown.) The sickness was unusually serious in patients under the age of five or over fifty. (Mortality in throat distemper was highest among infants and young children.) The disease was prevalent mainly among the rural population. (Mortality from throat distemper was most severe in rural areas.) Relapses might occur five months after recovery, even without a new toxic ingestion. Renewed exposure to the toxin always produced a new attack. (Relapses occurred in throat distemper victims.) Persons living on an unbalanced, monotonous diet, low in Vitamin C, were more susceptible to A.T.A.

The soil is the reservoir for the fungus causing A.T.A. The toxin is most likely to be found in moist, low-lying areas, with loamy or clayish soils that cannot absorb all the moisture of spring thawing. In the U.S.S.R. the symptoms appear most often between latitudes 50° and 60° north. They are most likely to appear after a mild winter, with alternate thawing and freezing, appearing first in spring, and reaching a peak in June and July.

In the Soviet Union, it is believed, the toxin is formed in grain left uncut standing in the fields during the winter and not harvested until April. Grain harvested before the spring thaw is not contaminated with T-2 toxin. In some cases there is visible black spotting on the contaminated grain, but usually the contamination is invisible, and its presence can only be indicated by the pepperish taste it gives to food. The toxin is very stable for twelve to eighteen months, being unaffected by milling or cooking, and may be injurious at any season up to six or seven years after it is produced.

The T-2 toxin may also be formed in grain containing more than 16% moisture, especially in an ill-ventilated granary. In the United States this toxin has been found in early spring in corn which ripened late in the summer and was especially moist, and then was stored in conventional cribs without artificial drying, according to Smalley. So it is not necessary that corn be left out in the fields during the winter for the toxin to form.

There are a few discrepancies between the symptomatology of A.T.A. and that of the throat distemper. Douglass does not divide the course of the disease into a succession of phases, although he indicates the possibility of a long gestation period. If the throat distemper was indeed an instance of A.T.A., the causal relationship between early symptoms and the acute phase might easily have been missed in colonial America, the early and severe symptoms occurring about a month apart.

Another discrepancy is the symptom of "ichorous" discharge from the nose, cited in all eighteenth-century accounts of the disease, causing ulceration of the skin both of patients and their nurses. This symptom is not mentioned in English summaries of Russian literature on A.T.A. But Mayer mentions that if an ether or alcohol extract of the A.T.A. toxic cereal is placed directly on human skin, it causes inflammation and swelling, and that the strongest reaction occurs on the skin of healthy humans.[22] Ulcers on the lips, nose, and fingers in some Russian cases might have been caused by such an "ichorous" nose discharge.

A third discrepancy is that the epidemics of A.T.A. in Russia were mostly over by the end of July, whereas the "throat distemper" continued through fall and winter. This discrepancy may be explained partly by the fact that Soviet authorities were in a better position to identify contaminated grain than colonial American authorities, and partly because of the availability of uncontaminated grain by August.

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[22] Mayer, "Endemic panmyelotoxicosis," p. 186.

If the symptoms of throat distemper in New England were caused by T-2 toxin, then how did it form, and what grain did it contaminate? Given the limitations of the available eighteenth-century sources of information, these questions cannot be answered except by speculation.

In colonial New England grain was usually stored in barns which were small—less than twenty-feet square. Seed corn, ground grain, and unthreshed grain were stored, together with tools and hay, in this limited area.[23] Perhaps some families short of storage space could not bring in all their ripe grain from the fields at once. Clark[24] mentions that many New Hampshire farmers left their hay cocks in the meadow, drawing them to the barn gradually in winter by ox or hand sleds; perhaps grain was also brought in over a period of time. However, it is not necessary that grain be left out in the fields during the winter for T-2 toxin to form.

Corn (maize), improperly stored, has already been identified in the United States as a source of T-2 toxin and it was one of the most important staple foods in New England in colonial times. Corn grows best in rich loamy soils, where it is more likely to be contaminated with T-2 toxin than corn grown on sandy soils. Weather conditions in 1735 caused late ripening of the corn, meaning it was more moist than usual when harvested, and increasing the chances of molding during storage.[25]

The above evidence supports the hypothesis that the symptoms of throat distemper in colonial New England and eighteenth-century England were caused by T-2 toxin produced by *Fusarium tricinctum* growing in corn.

The group of symptoms described, under various other labels, appeared in many parts of Europe and North America during the eighteenth and nineteenth centuries.[26] These labels included malignant ulcerous sore throat, putrid ulcerous sore throat, putrid fever, scarlatina maligna, angina maligna, angina gangrenosa, angina suffocativa, cynanche maligna, erysipelas maligna pharyngeal, etc. If these were, indeed, mycotoxicoses, their incidence would be influenced by changes in diet, weather, soil drainage, and conditions of grain storage. Since many outbreaks with these labels were highly mortal, further investigation may yield important information about mortality in the past.

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[23] Robert R. Walcott, "Husbandry in colonial New England," *New Engl. Quart.*, 1936, *9:* 233.

[24] Charles E. Clark, *The Eastern Frontier* (New York: Alfred Knopf, 1970), p. 251.

[25] Smalley, "Mycotoxicoses," p. 163.

[26] T. H. Keetell, *De angina epidemica 1769 et 1770* (Utrecht, 1773); John C. Lettsom, *Medical Memoirs of the General Dispensary in London, April 1773 to March 1774* (London, 1774); P. A. Marteau de Grandvilliers, *Description des maux de gorge épidémiques et gangréneux* (Paris, 1768); A. L. Read, *Histoire de l'esquinancie gangréneuse pétéchiale, qui a regné dans le village de Moivron au mois de novembre 1777* (Metz, 1777). Many other titles are listed in the U.S. Surgeon General's Index.

A CRITIQUE OF THE MATOSSIAN THESIS—ROBERT P. HUDSON

The aim of this paper is to replace the diphtheria-scarlet fever thesis promulgated by Caulfield to explain the outbreaks of "throat distemper" in New England (1735-40) with a different etiological agent, the fungus that causes a disease known as alimentary toxic aleukia (A.T.A.). The evidence offered by Dr. Matossian is frequently intriguing and always provocative, but, in the end, unconvincing to this reviewer.

The most serious objection to Matossian's thesis is one she does not address with any detailed directness. The spread of "throat distemper" through New England featured the typical epidemic march of certain contagious diseases, diphtheria and scarlet fever among them. From Kingston, where the New Hampshire epidemics apparently began in June 1735, the disease reached Exeter in August, Durham (10 miles further) in September, and Dover (another 10 miles) in October. The spread was even slower in Connecticut, where almost all the coastal towns, connected by well-traveled roads, were stricken in 1736, but where the inland towns, depending on remoteness, were visited only in successive years—Colchester in 1737, Hartford in 1738, Coventry in 1739 and finally, Killingly on the Rhode Island border, in 1740.

Contrast the leapfrog spread described above with the 1944 outbreak of A.T.A. in the Orenburg district of Russia. Orenburg is some 250 miles across, yet 47 of its 50 counties were afflicted with A.T.A. within a few weeks of each other, only the three easternmost having no fatalities.[1] A.T.A. results from the springtime consumption of cereal grains that have been left standing uncut through the winter. Food poisoning thus squares nicely with the extensive rapidly developing Russian epidemic of A.T.A. But how does one use sick grain to explain an epidemic that marched from town to town over months and years. Particularly is such an explanation damaged by the known fact (with which Dr. Matossian agrees) that outbreaks of A.T.A. are heavily dependent on meteorological conditions, namely a warm winter, wet spring and early thaw. If one is to fit A.T.A. into the New England picture, one will have to explain why communities a few miles apart had a definite sequential pattern of epidemics rather than simultaneous eruptions in all the towns experiencing the same climatic conditions.

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[1] C. F. Mayer, "Endemic panmyelotoxicosis in the Russian grain belt," *Mil. Surg*, 1953, *113:* 173-189, 295-315.

A second major objection relates to a different aspect of the timing of the outbreaks in New England. As mentioned, the initial New Hampshire epidemic began in June and reached nearby towns in October. According to Caulfield's reconstruction, many New England outbreaks of "throat distemper" occurred in autumn and even winter months. This pattern is characteristic of epidemics of diphtheria in the United States. On the other hand, all the authors I consulted described A.T.A. strictly as a vernal disease, beginning in April, peaking in May (two-thirds of the cases) and ending by July. This pattern relates to the phenomenon already described—A.T.A. comes from eating grain left standing through the winter. These same authors underscore this pattern by pointing out that outbreaks of A.T.A. occur *only* in areas where grain was left standing through the winter, even if favorable meteorological conditions involve other nearby regions.

Dr. Matossian tries to circumvent this difficulty by maintaining that the toxin of A.T.A. has been found in stored corn in the United States, implying that such could have been the case in the New England episodes. Unfortunately there is no page reference to this citation, but it isn't critical—the fact remains that the only known epidemics of A.T.A. have been associated with uncut crops. Further, the exhaustion of the supply of contaminated grain would explain the fact that the A.T.A. attacks usually end in July.

A third objection can be phrased as a question. If the New England "throat distemper" was A.T.A., why didn't the outbreaks continue with unchecked severity after 1740? In Russia the disease began to abate after the cause was determined and educational programs were begun. No such knowledge was available to America's eighteenth-century colonists, but the major epidemics ended in 1740. The author could resolve this in her favor if she could show that the requisite meteorological conditions never returned to New England or the rest of the United States during the remainder of the eighteenth or all of the nineteenth century. On the other hand we know that diphtheria and scarlet fever remained endemic and epidemic after 1740, so here we are not confronted with "disappearing" diseases as we apparently are with the A.T.A. thesis.

A fourth problem is also epidemiologic. Over and over Caulfield emphasizes that the "throat distemper" struck heaviest at children, not simply in terms of mortality, but in incidence as well. When the initial wave reached Hampton Fall, New Hampshire, 210 deaths occurred of which 200 were persons under age 20. Matossian would get around this by theorizing that children would take in more toxic cereal grain per unit of bodily weight, and thus would have a greater mortality. But this does not satisfy the question of incidence. Diphtheria and scarlet fever, have a higher mortality among the young, because they do not often affect adults. Yet, according to Joffe, A.T.A. ". . . affected children and all other age groups quite indiscriminately. . . ."[2]

The author is correct in indicating the many clinical similarities between diphtheria and the late stage of A.T.A. It is also true that the severe (angiose), but unusual, form of scarlet fever may be clinically indistinguishable from diphtheria. Even here, however, there is a problem with the material as presented. We now know that A.T.A.'s principal deleterious effects come about because it attacks the bone marrow. Highly susceptible in such a situation are the platelets, the result being a person susceptible to a hemorrhagic diathesis with bleeding from gums, nose, bowels and into skin. And indeed such is the case with A.T.A. Gajdusek, for instance, frankly labels A.T.A. as a hemorrhagic disease,[3] which is to say a hemorrhagic diathesis is a frequent, prominent part of the clinical picture. The problem is that while diphtheria can have hemorrhagic manifestations they are not a prominent part of the usual case, and excepting the skin rash, are even more uncommon in scarlet fever.

These are a number of lesser problems. On p. 534 Matossian gives reasons why aplastic anemia would not explain the symptoms of "throat distemper" as well as would a diagnosis of A.T.A., thereby seeming unaware of the fact that aplastic anemia is synonymous with the chief pathological feature of A.T.A., the panmyelotoxicosis. Or am I merely reading this section entirely incorrectly?

On p. 537 the author tries to find some modern scientific explanation for the "ichorous" nasal discharge frequently associated with "throat distemper," but not in A.T.A. If the mechanism finally invoked was indeed operative in what she sees as A.T.A. in New England, why was the symptom not described in Russian A.T.A.? There is no problem in Caulfield's thesis because an "ichorous" discharge was commonly encountered in diphtheria.

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[2] A. Z. Joffe, "Toxic production by cereal fungi causing toxic alimentary aleukia in man," in G. N. Wogan, ed., *Mycotoxins in Foodstuffs* (Cambridge: MIT Press, 1965), p. 78

[3] D. J. Gajdusek, *Acute Hemorrhagic Fevers and Mycotoxicoses in the Union of Soviet Socialist Republics* (Washington, D.C.: Walter Reed Army Medical Center, 1953), p. 82.

In summary we are asked to accept as a better explanation of the "throat distemper," a disease which has never been identified in epidemic form outside Russia and which departs from our available information about the New England epidemics in a number of important ways. I am always willing to let the running water of history purge our earlier misconceptions, but I find Caulfield's thesis, with its admitted inadequacies, more convincing than the one at hand.

REJOINDER—MARY K. MATOSSIAN

The objections of Dr. Hudson to the argument in "The Throat Distemper Reappraised" sound reasonable, but are not unanswerable.

The first, and most serious, objection to the thesis is the sequential nature of the "throat distemper" epidemics in New England. Hudson points out that identified epidemics of A.T.A., such as occurred in the Orenburg District in 1944, appeared within a few weeks of each other. My answer is that an epidemic of food poisoning does not necessarily appear as soon as food in a given area is contaminated; it appears when the people in that area eat the food. The diet of New England was varied; people everywhere did not rely upon a single staple crop and they did not necessarily consume a new harvest immediately. Moreover, if contaminated food is transported to other areas, the interval between the time of its contamination and the time of its ingestion may be even longer. In eighteenth-century New England there was active commerce in grain, for not every region was self-sufficient. This would account for the leap-frog "march" of the epidemic.

According to Prof. Chester Mirocha, Professor of Plant Pathology, University of Minnesota, the toxin responsible for A.T.A., T-2 toxin, remains stable for twelve to eighteen months if mixed with cereal starch. Grain contaminated in the spring of 1735 could cause harm in the fall and winter of 1735 and throughout the next year as well. Moreover, according to Prof. George Bean, Professor of Botany, University of Maryland, the formation of mycotoxin on grains varies by time and place, depending on different soils and weather. Soils and weather in different parts of New England varied. Grain could contain a strong enough dose of toxin in one locality in one year, while in another year it would be clean and grain in another locality might be contaminated.

Since strains of fungi, and the level and kind of metabolites they generate, vary through time and by locality, it would not be strange if there was some variance in the symptoms they produced. Different strains of the same species of fungi might produce an ichorous nasal discharge in an eighteenth-century American epidemic, but fail to do so in a twentieth-century Russian epidemic. The presence of an ichorous nasal discharge cannot be used as supporting evidence for a general diagnosis of diphtheria. According to *Harrison's Principles of Internal Medicine* (ed. 6, p. 850), "Diphtheria is *occasionally* restricted to the nasal mucosa, and a *unilateral* serosanguinous discharge is characteristic" (italics mine). This discharge is not described as ichorous or corrosive in cases of diphtheria.

Throat distemper epidemics did not cease in 1740. They recurred in Hampton, New Hampshire from 1735 to 1791 (Jeremy Belknap, *The History of New Hampshire* [Dover, 1812], 3: 181-182). There was a general epidemic of this disease in New England in 1784-1787 (Belknap, 2: 96). As late as the 1830s the town clerk of Andover, Massachusetts was attributing deaths to "throat distemper." (*Vital Records of Andover, Mass.* [Topsfield, Mass., 1912], 2:370-542, *passim*). The same symptoms, labelled "angina maligna," appeared in Philadelphia in the spring and summer of 1746 (John Kearsley, *Observations on the Angina Maligna, or The Putrid and Ulcerous Sore Throat* [Philadelphia, 1769]). The same symptoms, labelled "cynanche maligna," appeared in the Salem area, 1736-1793. The Surgeon-General's Index lists similar outbreaks in the nineteenth century. Could it be that some of the cases called "aplastic anemia" today are also manifestations of the same disease?

The reviewer points out that A.T.A. affects all age groups, whereas the incidence of "throat distemper" was heaviest among children. I would like to know his source. "Throat distemper" 'struck' children more heavily in that it *killed* more of them; so did A.T.A. There simply are no records, to the best of my knowledge, of the *incidence* of "throat distemper" among various age groups.

THE HISTORICAL BACKGROUND OF PSYCHIATRY IN LEBANON*

HERANT KATCHADOURIAN

In the early 19th century when Lebanon was part of the Ottoman province of Syria, medicine was mostly in the hands of poorly qualified practitioners, quacks, and native healers. The deplorable state of medical care prompted the Arabic proverb: "If the patient lives it is due to Allah, and if he dies it is due to Abdallah ('the servant of God,' i.e., the physician)."[1] Amir Bashir Al-Shihabi II, (1788-1840) ruler of semi-autonomous Mt. Lebanon, showed some general concern with matters of public health and sent a few Lebanese students to study medicine at the "Qasr al-'Anyi" in Egypt.[2] However, the more significant impetus for the growth of medicine in Lebanon was to come directly from the West.

In 1823, Pliny Fisk, the first American missionary, arrived in Beirut. Ten years later Asa Dodge, the first medical missionary was sent by the American Board of Commissioners for Foreign Missions. He was to be followed by other physicians including Cornelius Van Dyke (who translated the Bible into Arabic), George E. Post, and John Wortabet. In 1867 they established the medical school of the Syrian Protestant College, founded the previous year by Daniel Bliss (renamed the American University of Beirut in 1920).[3]

Although Catholic orders had long preceded Protestant missionaries in Lebanon, they were slower in taking the initiative in the medical field.

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[1] A G. Khairallah, *Outline of Arabic Contributions to Medicine*, (Beirut: American Press, 1946), Introduction.

[2] The "Qasr al-'Ayni" was the first modern medical institution in the Arab world It was founded in Cairo in 1827 with a French faculty under the patronage of Muhammad Ali who had become the ruler of Egypt in 1805, after driving the French out with British help. Although an illiterate man himself, Muhammad Ali was keenly aware of the importance of education and the superiority of Western science. He invited military and educational missions from the West and sent native students to study in Europe. This early dependence of higher education on the West was to become the general pattern for this part of the world. P. K. Hitti, *History of the Arabs*, 7th ed. (London: Macmillan, 1961), p 722.

[3] Stephen B. L. Penrose, *That They May Have Life· The Story of the American University of Beirut, 1866-1941* (Beirut: American University of Beirut, 1970), *passim*.

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The Capucins had come first (1625), followed by the Jesuits. In 1697, Louis XIV instructed his representatives to look after the interests of the "Maronite nation" and other Catholics in the area. Reduced sea fares were offered to Lebanese students wishing to study in the "land of the Christians."[4]

The Jesuit seminary at Ghazir, founded in 1846, was moved to Beirut in 1875 by decree of Pope Leo XIII. Two years later a medical division was started that attained recognition as a Faculty of Medicine in 1888. The following year a school of pharmacy was added and henceforth the institution became the "Faculté Française de Médecine et de Pharmacie."[5] Despite these early educational and medical developments, the care of the mentally ill remained sadly neglected. The impetus for reform finally came not from within the medical profession but from individual humanitarians.

Theophilus Waldmeier (1831-1915) was a Swiss Quaker who had been a missionary in Ethiopia and Syria for 38 years (Figure 1). The last twenty of these were spent at the Brummana Lebanon Mission in educational work supported by the Society of Friends in Britain, but then, as he relates it, "about the year 1894 my interest and sympathy increased greatly for the cause of the insane. My resolution to build an asylum for them was, as I believe, a direct inspiration from God."[6]

Waldmeier was nearly seventy at the time. His work at the Brummana Mission would have been a sufficiently fitting capstone to his arduous career. He was a widower who was being looked after by one of his daughters, and "enjoying the advantages of a good and comfortable living." Yet this extraordinary man proceeded to launch a project which during the next decade established the beginnings of modern psychiatric care in a part of the world where virtually nothing of the kind existed before.

There were two factors that were influential in motivating Waldmeier to work for the mentally ill: first, a life-long conviction that the mentally ill could get well; second, the abysmal conditions for the care of the mentally ill extant in Lebanon at the time.

Waldmeier offered the following episode as the early foundation for his hopeful optimism for the insane:

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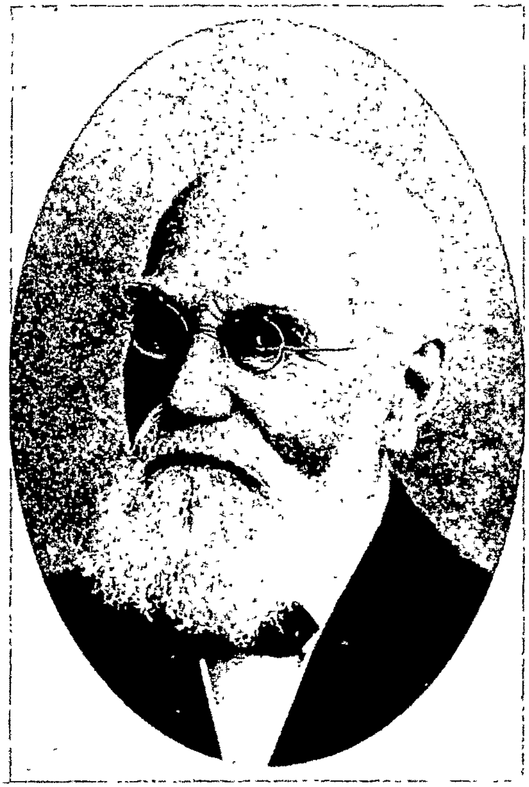
[4] P. K. Hitti, *Lebanon in History*, 2nd ed. (London: Macmillan, 1962), p. 398.

[5] *Annuaire de l'Université Saint-Joseph* (Beirut· Imprimerie Catholique, 1964-65), pp. 10-11.

[6] S. Hobhouse (ed.), *The Autobiography of Theophilus Waldmeier* (London: Friends Book Shop, 1925), p. 263.



Theophilus Waldmeier (1831-1915)
(Courtesy: Dr. Antranig Manugian)

> In my early youth I had been greatly impressed seeing a young, healthy woman, the mother of a family, being taken suddenly with insanity, while eating her dinner; she got up and threw the food into the faces of those around in a great fury and broke the plates, crying, scolding and beating everyone, tearing her clothes and running into the streets. She was followed, brought home, bound with ropes and taken to a hospital where she remained some time and came back quite well. I had seen her often with her family as a happy and good mother. I never could forget this instance, and wherever I met the insane I felt great pity and sympathy for them and thanked God for my sound mind.[7]

There was ample reason for concern for the welfare of the mentally ill in 19th-century Lebanon. An estimated 140 severely deranged persons in the seven districts of Mt. Lebanon languished "bound hand and foot in iron chains . . . in dark, damp, and filthy places, caves, or vaults, in some convents, where they are fettered in heavy iron chains."[8] There was not a single institution for their care in the entire country or the entire region outside of Egypt where a state institution near Cairo provided humane asylum.

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[7] *Ibid*, p 267.

Waldmeier could rightly claim that his concern extended to all of "the insane in Bible Lands." In his appeal for funds, he wrote,

> American and European missionaries have done a great deal for Syria and Palestine. Schools have been built, colleges opened, churches and hospitals erected; the Holy Scriptures have been translated, printed, and circulated, and other good books have been printed and various means have been employed to elevate and enlighten the people. All honor and praise is due to those noble missionaries who have done their utmost for the social and religious elevation of the country; but there is still one great need to be supplied and this need is that of the totally forsaken sufferers from mental diseases.[9]

Waldmeier noted that the only acknowledged form of insanity in the Orient was "demono-mania" (devil-possession) and the only treatment exorcism.[10] He described in considerable detail how this was practiced at the monastery of Kuzheya.

The monastery of Kuzheya, deep in the Lebanese mountains, had a famous cave for casting out evil spirits. It was dedicated to Saint Anthony of Padua who had lived there for forty years as a hermit and who was believed to have imparted special healing powers to the resident monks.[11] The entrance to the cave was guarded by two large rocks, arched over and surmounted by a cross. The person being led to the cave was watched for signs of fear as he approached the arch. If he became apprehensive at the sight of the cross or refused to proceed further, this was taken as additional evidence of his being possessed.

The attempt at cure took place within the large cave where water dripping from the walls formed stalactites which were broken up and sold as amulets by the monks. Along the walls of the cave there were stone blocks on which the person was seated and his neck secured to the wall by a heavy collar and chain. The initial treatment consisted of merely letting the afflicted person remain in the cave for three days. On the third night, the patron saint was expected to appear, cast out the demon, and restore him to reason. If the subject survived the wait but did not recover, the monks then resorted to more forceful methods. He was made to face the priest who beat him on the head with a heavy boot while he read the text of exorcism: "Get thee away from this person, accursed devil, and enter into the Red Sea and leave the temple of God. I force thee in the name of the Father, the Son, and the Holy Ghost to go to the everlasting fire. . . ."[12] In cases where the patient died while in the cave, the monks told his family that Saint Anthony had loosened his chains and had taken him straight to heaven which entitled the monastery to a donation.

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[8] T. Waldmeier, *Appeal for the First Home for the Insane on Mt Lebanon* (London Headley Brothers, 1897), pp. 7-8.

[9] *Ibid.*, p. 8.

[10] The Arabic for "insane" is *majnoon*—possessed by a *jinn* or spirit.

[11] The Maronite monastery of Kuzheya (or Qazhayya) had been an eminent center of learning, its notorious cave notwithstanding. It was the seat of the first printing press in the entire Arab East where the Psalms were printed in Arabic with Syriac characters in 1610 (Hitti, *Lebanon in History*, p. 457).

Another cave near Mt. Carmel fulfilled a similar function. The insane were locked in for three days and nights awaiting the healing visitation of the Prophet Elijah. Other Christian churches like the Greek Orthodox as well as Moslems used comparable methods. Moslems also invoked Elijah and resorted to the use of amulets, charms, and bleeding. In one Orthodox monastery, inmates were kept in small cells adjacent to the church dedicated to Saint George. The ends of the chains that bound the insane ran through a hole in the wall of the church and were fastened around a stone pillar inside.

Waldmeier did not venture lightly into these seemingly hopeless circumstances. In order to work in this field, he had to resign his post at the Brummana Mission and thus lose institutional support. There was no organization to back him up nor any ready source of financial support. He was not a physician and had no substantial experience in dealing with the mentally ill. And he was already quite old. But Waldmeier was also a man of deep faith and compassion with a remarkable gift of awakening interest in his proposals and instilling confidence in the success of his undertakings. A compelling speaker, he was equally at home in addressing an assembly of dignitaries or a group of school children. He showed great tact in dealing with people of disparate backgrounds and was endowed with exceptional organizational and fund-raising skills as subsequent events were to prove.

Since Waldmeier was a member of the Society of Friends in England, he thought he could obtain its support. The Society was unwilling to do this in its corporate capacity but individual members of the Society were to provide Waldmeier with most of his financial support. During a quarter of a century of work in Lebanon he had won the respect and friendship of prominent people within the country. One of them was Henry H. Jessup, the pillar of the Syrian Mission and a member of the first Board of Managers of the Syrian Protestant College. On April 17, 1896, Jessup held a meeting in his study to which were invited a number of eminent foreign and national residents of Beirut to hear Waldmeier plead for the establishment of a mental hospital in Lebanon.[13] Ten of those present consented to act as an Executive Committee with John Wortabet, Professor of Anatomy in the Medical College as chairman.[14]

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[12] Waldmeier, *Appeal*, p 12.

The venture received an unexpected boost from Sir Thomas Smith Clouston (1850-1915), Physician Superintendent of the Edinburgh Royal Asylum, who had stopped in Beirut on his way from a visit to the Holy Land. Clouston's attendance at a meeting of the Beirut Executive Committee caused quite a sensation. He told members:

> I have travelled in Palestine and Syria and seen the cruelties and atrocities practiced on the insane, who often in consequence have lost their lives, and it is a sin that the missionaries, doctors and ministers have not yet cared for the most unfortunate sufferers in this country; it is also a shame to Europe and America that they have neglected them for all these centuries. But I am now comforted to see that you are awake to the urgent need of doing something for them, and that Mr. Waldmeier is going to plead their cause in Europe and America. When he comes to Edinburgh I shall help him and now I put down 10 pounds for this most urgent undertaking.[15]

The Committee appointed Waldmeier general agent to visit Europe and the United States authorized to raise funds for the construction of an asylum. Waldmeier set out on this crucial journey to raise funds and to become informed about the care of the mentally ill armed with supporting letters, including one from the British Counsel General. Before leaving, noting the many demands he was to face and reminded of the fact that "it was not good that man should be alone," Waldmeier married Fareedy Josephy Saleem on April 17, 1896 (with the Reverend Jessup officiating) and a week later they left by a French steamer for Marseilles.

The Waldmeiers traveled for two years. They began their work in his native Switzerland where they met with only modest success. Germany was next and even more disappointing. Waldmeier by then was eagerly looking forward to getting to "dear old England" and for good reason.

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[13] Henry Harris Jessup, *Fifty Three Years in Syria*, 2 vols. (New York: Fleming H. Revell, 1910), 2: 521.

[14] Wortabet cautioned Waldmeier, "Of course I need not remind you that the success of the scheme will depend entirely on the full equipment of a lunatic asylum according to the latest development of such institutions in Europe." Waldmeier, *Appeal*, p 270.

[15] *Ibid* , p. 268.

Old friends rallied to his support. Sir Richard Tangye consented to be treasurer of a nineteen-member board of "well-qualified gentlemen" whose interest proved enduring. (Most of the members remained on the Committee for the next seventeen years. Four physicians were still serving on the Committee twenty-nine years later.) In a short time contributions reached £1,500. The Waldmeiers journeyed extensively in England, Scotland and Ireland organizing auxiliary committees to funnel contributions to the central London Committee since Waldmeier scrupulously refrained from personally accepting contributions. Sir Thomas Clouston, true to his word, helped greatly as did numerous other alienists, some of whom served as chairmen in public meetings.

The project found further favor in the United States mostly among Quaker organizations. From members of the Society of Friends in Philadelphia a Central Committee was organized with Asa Wing as President to coordinate further efforts within the state.

The Waldmeiers visited mental hospitals in various countries including the Retreat at York (founded by another famous Quaker, William Tuke). They actually lived for some time in the Frankford Asylum near Philadelphia to learn first-hand about administration and treatment methods. Reflecting on his experience Waldmeier wrote:

> Here we found it not so difficult as we had expected to live with the insane and to nurse and treat them. Still it needs a strong psychological constitution to remain constantly with insane patients, without being a little affected even though one is unconscious of knowing or feeling it. We know that we cannot withdraw ourselves from the influence of those with whom we associate, just as we also influence our surroundings and even the most impregnable mind must yield to this. Yet I have seen ladies and gentlemen who have lived for thirty years or more in asylums with the insane without showing the slightest sign of their having been so long with them.[16]

The Waldmeiers returned to Beirut in 1898 having collected adequate funds and set up support organizations on two continents as well as having become informed about the operation of mental hospitals. A site was purchased for 1,828 pounds three miles from Beirut on a hill overlooking the town.[17] The Waldmeiers packed their belongings and moved into the only wooden shelter existing on the site amidst "serpents, scorpions and all kinds of insects and other impediments."[18]

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[16] Hobhouse, *Waldmeier*, p. 287.

[17] The site was known as "Asfouriyeh" ("place of birds") which over the years became the colloquial name for the hospital.

[18] Hobhouse, *Waldmeier*, p 295.

The first buildings erected consisted of separate male and female wards for thirty patients each and an administration building which housed the Waldmeiers and the medical director's family. The medical director of the new hospital was Dr. Wolff, a psychiatrist from the Munsterlingen Asylum in Switzerland who first had to go to Istanbul to obtain a Turkish diploma and when he finally arrived in Beirut, he was put in quarantine because of a threat of the plague. The first nursing staff of the hospital consisted of two European male attendants, three European female nurses, and a number of native men and women in training.

The institution was officially opened to patients on August 6, 1900, and by the twentieth of the month ten men and five women had been admitted. The hospital's non-sectarian character is reflected in the fact that this initial group of fifteen patients contained Moslems, Druzes, Greek Orthodox, Maronites, Protestants, and Jews. Waldmeier officially functioned as the administrator of the hospital as well as performing a wide variety of tasks ranging from being the architect for the first fifteen buildings to conducting Sunday services for the inmates in Arabic.

In planning the hospital Waldmeier followed the advice of Dr. Yellowlees of the Glasgow Asylum who told him to follow the cottage system.[19] He also developed astute opinions about the nature and treatment of mental illness. As a devout Christian, Waldmeier accepted literally New Testament passages on possession by evil spirits; yet in his approach to patients, reason and compassion were his guiding principles. Waldmeier also became informed about current psychiatric knowledge without uncritically coming under its sway.

Reflecting on what he had learned over the years, he wrote:

> First of all I had a very exaggerated idea of the powers of a specialist of mental diseases and expected rather too much from him. Time and experience taught me that even a medical specialist can do very little for the recovery or cure of an insane patient by medicine. The psychoses must have their course . . . the less interference with psychoses the better . . . and all we can do in an asylum is to exercise humane, loving, Christian and patient treatment. . . .
>
> The diseases of the mental faculty are very obscure and very sad. What is most disheartening is that there is no effective medicine or remedy, nor is any medical doctor in the world at large able to say, 'I can cure the insane.' Medical men with all their modern attainments, experiences, science and skill still stand as helpless before insanity as before a cancer, general paralysis or epilepsy, etc. . . .

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[19] There was apparently a good deal of improvisation. On one occasion when asked about the ground plan of the buildings, Waldmeier took some lumps of sugar and threw them on the table saying, "There's the ground plan!"

> A medical director is needed in every asylum not so much for the insane but for the sane who are engaged in the work. . . .[20]

For the next fifty years, the Lebanon Hospital for the Insane at Asfouriyeh was the only institution of its kind in Lebanon. Its capacity and range of activities expanded and its international and non-sectarian character were no doubt important factors in its progressively wider acceptance by the community. In 1914 the name of the hospital was changed to The Lebanon Hospital for Mental Diseases and in 1950 to The Lebanon Hospital for Mental and Nervous Disorders, though it continued to be commonly referred to as "Asfouriyeh."

Theophilus Waldmeier remained the business superintendent of the hospital until he was eighty when he relinquished the helm with great reluctance and died five years later on March 10, 1915.

The hospital has been primarily under British leadership throughout the years. The medical directors following Dr. Wolff were British and the Lebanese physicians affiliated with the hospital obtained their psychiatric training in Great Britain. This gave British psychiatric methods a clear lead in the English-speaking sector of psychiatric practitioners in the country. Furthermore, close ties were established early between this institution and the American University of Beirut. Since the latter had not developed independent psychiatric facilities, the teaching of psychiatry became entrusted to the medical staff of the Lebanon Hospital which further enhanced the British model of psychiatric theory and practice in Lebanon.

In the French-oriented sector of Lebanon the mentally ill were also initially neglected. The initiative for reform was again to come from a non-medical source, this time a Lebanese Capucin priest, Father Jacques, born Khalil Haddad in 1875, at the small coastal town of Ghazir.

Father Jacques was the eldest of fourteen children of a poor and devout Maronite family. He joined the Capucin orders at the monastery of Beit Khashebau and then established a monastery himself in 1919 on a hill several miles north of Beirut.[21] The plight of elderly priests prompted him to convert it in 1926 to an institution for their care. Eventually other invalids including the mentally retarded and the mentally ill found their way to it and the institution grew into a sizable hospital maintained by the congregation of the Franciscan Sisters of the Cross of Lebanon, an order founded by Father Jacques in 1930.

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[20] Hobhouse, *Waldmeier*, p 309.

[21] R. P. Theophane, *L'Apôtre de la Croix* (Beirut: Imprimerie Catholique, 1961).

In 1951 a major reorganization was undertaken to facilitate the administration of what had become the largest hospital for chronic diseases in the country. The original site was converted into a psychiatric hospital proper and called "Hôpital Psychiatrique de la Croix" but more commonly known as Deir-El-Saleeb ("Monastery of the Cross"). The nonpsychiatric cases were transferred to various other institutions that had also been established through the years by Father Jacques who died in 1954, at eighty years of age, leaving behind a remarkable legacy of good works.

The relationship of the French Faculty of Medicine to the Hospital of the Cross has been similar to that of the Lebanon Hospital and the American University of Beirut. Thus there developed two distinct patterns of teaching and practice of psychiatry within the same small country—one English, the other French oriented.

The last addition to inpatient psychiatric services in Lebanon came in 1959 when a Moslem asylum for the infirm in Beirut was expanded into the Islamic Neuropsychiatric Hospital. Lebanon never developed state hospitals. Instead the government subsidized a number of beds in all three hospitals for indigent patients.

During the 1960s an increasing number of Lebanese psychiatrists were trained in the United States, thus introducing a third orientation to the practice of psychiatry in the country. But in the absence of inpatient facilities as a base for their activities, their presence has not fundamentally influenced the predominant dual orientation described above.

The net effect of all these developments was to make Lebanon preeminent among all Arab countries, both in the scope as well as the quality of psychiatric care. Over the years Lebanese psychiatry has provided a great deal of direct service and training of psychiatric personnel for work within Lebanon and in neighboring Arab countries, thus bringing to fruition the remarkable vision of Theophilus Waldmeier.[22]

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[22] According to a survey conducted in the early 1960s, Lebanon had one psychiatrist per 95,000 population (a total of 21 psychiatrists and about 1,500 psychiatric hospital beds) compared with one psychiatrist per 373,000 population for Egypt, 500,000 for Jordan, 625,000 for Syria, 800,000 for Iraq, 2,000,000 for Saudi Arabia, and 4,000,000 for Sudan. (J. Racy, "Psychiatry in the Arab East," *Acta Psychiatrica Scandinavica*, 1970, Supp. 211:55).

"MEDICAL" DESPATCHES FROM AMERICAN CONSULS IN MALTA, 1804-1865

PAUL CASSAR

The United States of America first established consular representation in Malta in 1796 towards the close of the rule of the Order of St. John in Malta.[1] The consuls kept up a regular correspondence with the American Secretary of State. Their despatches conveyed information on the movements of merchant shipping and the British fleet in Maltese harbors, on trade statistics, and also items of medical interest.

The earliest "medical" despatches referred to the enforcement of quarantine measures in Malta and other Mediterranean ports which were meant to control, among other diseases, the spread of yellow fever which had brought havoc to Philadelphia in 1793 and continued to cause serious epidemics in the American South as late as the mid-nineteenth century.[2] Towards the end of 1804 yellow fever appeared in Spain and Gibraltar,[3] causing considerable anxiety to the health authorities of Malta as some of the inhabitants of the Rock had come to the island in the early days of the outbreak to escape the disease.

Malta had inherited an efficient quarantine system from the Order of St. John based on the isolation of passengers at the Lazzaretto built on a small island in one of the harbors. Quarantine measures were tightened in 1804 and the Maltese islands remained untouched. Joseph Pulis, the American consul in Malta, informed the Secretary of State in Washington accordingly.

The Lazzaretto figures again in the consular despatches in 1827 when the American warship *North Carolina* entered a Maltese harbor on 19 January with no less than one hundred sick men on board. The men were landed at the Lazzaretto where they were entrusted to the care of Dr. Bailey Washington, the ship's surgeon.[4]

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[1] Paul Cassar, *Early Relations between Malta and the U.S.A.* (Valetta, Malta. Midsea Books, 1976), p. 9.

[2] R. H. Shryock, *Medicine in America· Historical Essays* (Baltimore: Johns Hopkins University Press, 1966), pp. 15, 55 and 212.

[3] Consular Despatches from Malta, (CDM), The National Archives, Washington, D C., Vol. 1 (1801-34), October 26, 1804.

[4] CDM, Vol. 1 (1801-34), January 27, 1827.

In spite of the strict quarantine measures taken by the Health Office of Malta to prevent the introduction of infectious illnesses in the island, outbreaks of imported communicable diseases did sometimes appear on an epidemic scale. These occurrences disrupted the commercial life of the island as neighboring ports would immediately impose a quarantine on all vessels touching at Malta. On 19 October 1830, the American consul, Paul Eynaud, informed the Secretary of State in Washington that smallpox had been "raging in the island for some months past" with a daily incidence varying from thirty to forty cases and that Sicily and Naples had declared a quarantine of fourteen days against arrivals from Malta.[5]

Eynaud's successor to the consular office, William Andrews Winthrop, was well aware how irksome the quarantine system could be for the traveler and the ship crews but he was none the less appreciative of its benefits for the public health. In April 1864 he suggested to the Secretary of State that American ships should be supplied with Bills of Health in accordance with the usage of European countries to show that no disease of an epidemic nature existed in the United States at the time that the vessel left an American port. Conversely, he thought that the masters of foreign ships bound to American ports should likewise be required to submit a Bill of Health from their port of departure. These suggestions were turned down by the Secretary of State on the ground that such measures could not be enforced without the authority of Congress and that he could not see any practical advantage deriving therefrom. Winthrop retorted: "The preservation of the public health is of so much importance. I have just read of the yellow fever now being in New Hampshire and causing the greatest alarm which perhaps might have been prevented if the vessel had brought with her a foul bill of health and been placed in quarantine."[6] Four years later there was a change of views and, in August 1868, Winthrop received instructions from the Assistant Secretary of State that a Bill of Health was required by the authorities of New York from every ship's master bound for that city.[7]

The consular despatches that command the greatest interest from the medical viewpoint are those written by Winthrop at the time of the Civil War in America (1861-65). He made no claims to be versed in medical matters and he was not the creator of any original medical concepts but he kept his eyes open to what was going on around him and endeavored to gather information from contacts with British naval and military officers regarding developments and innovations in the British armed forces, from reading the Maltese press, and from personal observations of local events. He appreciated the need for caring for the health of the soldier and sailor on the battlefield and did his utmost to promote, through his communications to the Secretary of State in Washington, the humane treatment of the men engaged in combat against one another and against a harsh and hostile physical environment. That his contributions were not unnecessary or uncalled for is shown by the fact that the outbreak of the Civil War found the two belligerents with ill developed medical services and that the American medical profession was severely tested by the war.[8]

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[5] *Ibid.*, October 19, 1830.

[6] CDM, Vol. 5 (1862-69), April 30, July 1 and 30, 1864.

[7] *Ibid.*, August 14, 1868.

On 13 June 1861 Winthrop wrote his first "medical" despatch on this topic to the Secretary of State. He described how British soldiers at Malta had been kept under canvas for years, both in summer and in winter, without suffering more "sickness than those in barracks." He also took the trouble to send plans of the layout of camps as used by the French in the Crimean War (1854-56) and diagrams of how their tents were constructed. That Winthrop's concern was fully justified is obvious from the fact that sanitary conditions in the American camps have been described as having been "disgraceful" at the beginning of the war.[9]

Apart from pointing to the best siting of camps, Winthrop also drew attention to the kind of clothing best suited for the preservation of the soldier's physical well-being. He proposed the introduction of the "new dress to be worn by the English army in India" for the American soldier when operating in the Southern States in summer;[10] and also the "cane or bamboo" helmet manufactured in India for the protection of the temples and back of the head against the sun to diminish the occurrence of sunstroke.[11]

The psychological well-being of the soldier also engaged his attention and he devoted the greater part of a despatch of 20 January 1862 to this aspect of mental health. "Idleness in an army," he remarked, "has been a fruitful source of trouble to a soldier bringing as it does inebriety which leads to insubordination and crime." It was important to keep the "soldier's thoughts employed and his mind amused" and for this purpose he proposed the introduction of different field sports in the army. He did not neglect the cultural side; in fact he advised the provision of newspapers and books as well as theatrical performances and concerts.[12]

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[8] R. H. Shryock, *Medicine in America*, p 100

[9] *Ibid.*, p. 21.

[10] CDM, Vol. 4 (1857-61), July 8, 1861.

[11] CDM, Vol. 5 (1862-69), January 10, 1862.

Winthrop was very well aware that in war time "more officers and men die from disease than from the balls of the enemy." Subsequent events proved him right for they showed that during the first year of the war five-sixths of the deaths in the Union armies were due to illness unconnected with the battlefield.[13] Winthrop, therefore, felt it his duty to bring to the notice of the Secretary of State some medical measures which he had seen applied by the British Army in Malta. He had been encouraged to do this by the fact that he had come to know of the appointment of a Sanitary Commission in America and that a copy of one of his despatches had been forwarded to the President of the Commission.

At the outbreak of the war the status of the doctors who had joined the Union Army was that of civilians. Winthrop felt that this arrangement was unsatisfactory and on 5 November 1861 he wrote to the Secretary of State suggesting that the army should have its own medical officers whose duties would include the drawing up of reports about the incidence and nature of the illnesses among the soldiers and of the treatments carried out; and the daily inspection of camps to inquire about the health of the soldiers and detect the onset of communicable diseases—such as dysentery—at its earliest manifestation.[14] He expected an outbreak of "dysentery and its kindred diseases" with the approach of warm weather and the possibility of Northern military forces moving into Louisiana. To forestall the medical difficulties of such an occurrence he proposed, in March 1862, that two or three ships "be sent without their guns and anchored in some safe and healthy stations . . . which should solely be employed as hospitals where the sick could not be carried but where they might enjoy every medical comfort and breathe a purer air than they could find in their heated tents on shore."[15]

The first cholera epidemic to strike the Maltese Islands occurred in 1837. When the disease again invaded Malta in 1865, Winthrop was an eyewitness to the havoc wrought and was deeply impressed by the alarm and mortality that characterized the epidemic. Americans, too, had experienced the ravages of cholera in the 1830s, 40s and 60s when it caused a great mortality in cities and among the slaves in the plantations in the

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[12] CDM, Vol. 4 (1857-61), June 13, 1861; CDM, Vol. 5 (1862-69), January 20, 1862

[13] R. H. Shryock, *Medicine in America*, p. 136.

[14] CDM, Vol. 4 (1857-61), November 5, 1861.

[15] CDM, Vol. 5 (1862-69), March 14, 1862.

South.[16] Winthrop was, therefore, quite justified in stressing the importance of preventing its reappearance in the United States as medical men were therapeutically impotent in treating it. "All medicines known to medical practitioners," observed Winthrop in his despatch of 31 October, "have been tried with cholera patients . . . but all have signally failed . . . It is thus very evident that no certain cure has yet been discovered and equally true that in most cases of cholera only two persons out of ten will escape."

The Maltese business community, whose commercial affairs were disrupted by the imposition of quarantine restrictions, upheld the miasmatic or bad air theory of the propagation of cholera and argued that as nothing could stop these "air columns" from passing from one locality to another all quarantine measures against cholera were useless and should be removed. Winthrop adhered to this theory and published an article in the London *Times* of 9 November 1865, reproduced in *The Malta Observer* of 23 November, "to expose the absurdity of quarantines against this disease which are so destructive to commerce . . . Our merchants have suffered by these quarantines and it would be a great relief to them were they to be altogether abolished by a Congress of Nations."[17]

It is pertinent to note that the international approach in health matters had been catching on since the mid-century when the first International Sanitary Conference opened in Paris on July 23, 1851. This conference was prompted by the cholera epidemics that were invading Europe at the time and its aim was to seek international agreement on the minimum quarantine requirements.[18]

One of the most noteworthy of Winthrop's despatches was the one he sent on 28 September 1864 to the Assistant Secretary of State, F. W. Seward.[19] It dealt with the first agreement among several European countries to treat battle casualties and the personnel looking after them as neutrals. Here is the despatch, one of the shortest but most significant that Winthrop ever addressed to Washington:

> Sir,
>
> I beg to inform you that a Treaty has been made between France, Italy, Denmark, Prussia, Portugal, Holland and Switzerland and by which during war, all wounded soldiers, all military hospitals to ambulance corps and all persons engaged in sanitary affairs shall be considered neutrals and treated as such.

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[16] R. H. Shryock, *Medicine in America*, pp. 15 and 54.

[17] CDM, Vol. 5 (1862-69), November 13 and December 11, 1865.

[18] John Taylor, "First steps," *World Health*, March 1968, 3.

[19] CDM, Vol. 5 (1862-69), September 26, 1864.

Might I beg to ask if humanity would not prompt a similar understanding among ourselves while our domestic troubles continue.

I have the honour to be, Sir
Your most obedient servant
William Winthrop
Consul.

This was one of the earliest agreements to be reached among European nations as an offshoot of the Conference which adopted the ten articles of the first Geneva Convention. On 22 August 1864, sixteen nations met at Geneva with the aim of ameliorating the condition of the wounded in armies in the field. They were inspired by the humanitarian writings and works of Jean Henri Dunant, founder of the international Red Cross organization, who in 1863 had proposed the "neutralization" of the wounded on the battlefield and the personnel who cared for them. How relevant was Winthrop's plea for a "similar understanding" between the Union and the Confederate armies is evident from the fact that the representatives of the United Sanitary Commission were appalled by the inadequacy of their army medical service and that when they protested against the resulting suffering among the troops they were rebuffed by the Secretary of War as meddlers.[20] It was only many years afterwards that a change of attitude occurred when on 1 March 1882 the United States of America ratified the Geneva Convention of 1864.[21]

Epilogue. These despatches are valuable from several points of view: (a) they are first hand accounts written by participants who lived through the events they have recorded; (b) they have a ring of spontaneity since they were written without any prospects of publication; (c) they appeal by their directness and simplicity of language; and (d) they pinpoint medical features which were novel at the time.

The long spell of Winthrop's consulship—thirty-five years—accounts for the coverage of a chain of events extending over such an extensive period of Maltese and American relations; but apart from the time factor and the contemporary scene, Winthrop's personality played a major role. Indeed his despatches reveal him as an arresting and forceful character and an upright and self-disciplined man endowed with great tenacity and unhesitating devotion to duty. Gifted with an inquisitive mind, he was always ready to learn from developments abroad and to weigh their significance for the furtherance of the interests of the United States.

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[20] R. H. Shryock, *Medicine in America*, p. 103.

[21] B. Gagnebin and M. Gazay, *Encounter with Henri Dunant* (Geneva: Georg, 1963), pp. 45 and 50

When, at the end of his service as consul, he was commended by the Secretary of State at Washington for having performed his duties ''faithfully and well,'' he said: ''It has been my study through a long official life to act rightly towards all men and it is peculiarly gratifying for me to know from the Department that my efforts to do so have not been in vain.''[22] Winthrop certainly commands our gratitude for having recorded so much of interest in his despatches which deserve, at least a footnote in the saga of the medical histories of Malta and of the United States.

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[22] CDM, Vol. 5 (1862-69), December 17, 1864.

THE OSLERS' SON—REVERE*

GEORGE T. HARRELL

William and Grace Revere Osler married relatively late in life.[1] What sort of person was the only surviving child of these world famous, devoted, and often overly solicitous parents? Grace's first pregnancy while married to Osler had resulted in a son who lived only seven days. The second, and last pregnancy, was marred by an attack of peritonitis in the mother during the first trimester. On December 28, 1895, Edward Revere Osler was delivered by Howard A. Kelly at the Osler's home in Baltimore. The boy weighed seven pounds and was blue-eyed and fair-haired like his mother. She was 42 and his father 46. Osler was very excited, but waited five days before he kissed the child. He then began the role he followed over the years of proud parent who showed off his child at every opportunity and wrote about him in letters to family and professional friends.[2]

Childhood. From the beginning Revere was described as a happy, gentle, shy, sweet child who never gave any trouble. The black mammy who originally cared for him was quickly replaced by a Scotch governess when Osler heard Revere at age four order: "Hist dat window."[3] His father already had registered him for British citizenship and was determined he should be educated in England. The boy was very close to his mother, but he also spent much time with his father when the family went on trips to Canada and abroad. When he was six, he went to England for the first time. He was introduced to cricket at eight on Guernsey where he promptly knocked a ball through a window. During his childhood his father had begun to read Milton's "Ode on the Morning of Christ's Nativity" to his son on Christmas Eve.[4] During his whole life he was exposed to English literature and encouraged to follow his father's interest in the books of the classics.

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* Read at the American Osler Society meeting, Boston, Mass., April 29, 1980.

[1] George T. Harrell, "Lady Osler," *Bull. Hist. Med*, 1979, *53:* 81-99.

[2] Harvey Cushing, *The Life of Sir William Osler* (New York: Oxford University Press, 1940) has many scattered, brief references to Revere.

[3] Edith Gittings Reid, *The Great Physician: A Short Life of Sir William Osler* (New York: Oxford University Press, 1931), pp. 145-286.

[4] Anne Wilkinson, *Lions in the Way: A Discursive History of the Oslers* (Toronto: Macmillan, 1956), pp. 198-224.

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Schooling. Little is known of Revere's early education in Baltimore. The Oslers moved to Oxford when he was ten, and he entered the Dragon school. He began playing football there. His father repeatedly noted that the boy was not interested in schooling or formal studies and would not become a scholar. For a few years, he had an interest in stamps. His parents took him abroad to Paris, Florence, other cities on the Continent and also back to North America. By age fifteen he had grown taller than his father and was entered at Winchester. For the first time he was on his own away from his family. His academic performance was mediocre, and he required tutoring, especially in Latin and Greek. He played cricket and happily plunged into the life of an English public schoolboy.

By 1913 he was age 18, but had not decided on a future career. He failed on his first attempt to pass the entrance examinations for Oxford, though he had been tutored the winter before. He repeated the exams, this time passing them successfully and in October 1914, entered Christ Church College where he lived in. Revere was proud of his college and included its crest in the bookplate he designed. The war and its pressures already were disrupting the lives of most young men. His parents and family in Canada urged him to continue his education as long as he could, but he was very uneasy about not being in uniform. His formal education ended in January, 1915, after he turned 19, when he withdrew from college to enter the military.

Friends. Little is known of his friends in Baltimore. Occasionally a child would be invited by his parents to lunch. On moving to Oxford, Revere played with the Max Müller boys from whose family the first house at 7 Norham Gardens was rented.

During the first summer vacation after entering Winchester, he had a friend, Raleigh Parker, with his sister as guests for fishing. Mrs. Osler always had girls around the house and a French girl spent a year with them. Two Canadian sisters were special friends over the years. On her death, Lady Osler left a ring to the quieter, younger one whose first long dress she had made for the girl to go to a dance with Revere. That friendship persisted into college, and the young lady gave great comfort to his mother after Revere's death. A friend, Bobby Emmons of Oxford, was a frequent companion during the college and war years. He participated in one of Revere's rare practical jokes played on his father in a fictitious letter about rare books. The very close ties with his parents and their friends, the fact that he was an only child, and by nature shy, apparently did not lead to many strong friendships. Revere's chief interests and hobbies were solitary ones he could pursue alone.

Fishing. Revere's consuming life-long passion was fishing which he pursued at every opportunity. He became entranced with the sport at age nine in Murray Bay, Quebec. The next year in Oxford he caught a variety of fish, including a pike of record size. Thereafter, family vacations and holidays anywhere were planned with opportunities for fishing in mind. His father encouraged him and often went with him. His mother went occasionally. Professional instruction was arranged, and his father's friends sent rods and advice. Some of the boy's most charming letters, which reflected his mother's style and literary skill, were written to thank them and describe his fishing experiences. Osler seized on this interest as a means of stimulating his son to emulate his own deep concern with books and bought him first editions of Izaac Walton's writings. His father used Isaac or Ike as as the most frequent nicknames for Revere. When he designed his bookplate, Revere included fishing tackle and described himself on it as "Discip. IZ. WA."

He fished for some years before he caught his first salmon on August 30, 1913, in Elder's pool, Kirksig River, Sutherland. It weighed nine and three-quarter pounds. The family excitement was so great that a formal dinner for nine guests was arranged the next day at the Culag Hotel, Lochinver, North Britain. The handwritten menu to which the actual fly used is attached still exists.[5] Another sheet of paper has the signatures of the guests with a drawing of the fish, signed E. Revere Osler, and a childish sketch showing the landing with a second kneeling figure holding a boathook. These memorabilia are pasted in Revere's copy of a reprint of

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[5] The menu was as follows:

Clear Soup
Scotch Broth

Boiled Salmon, Hollandaise Sauce
a la Revere (added in pencil)

Saute of Kidney
Curried Prawns

Roast Chicken
Roast Beef

Bachelor's Pudding
Trifle ! ! ! ! (exclamation points and underlining
added in pencil)
Compote of Pears

Cheese Dessert

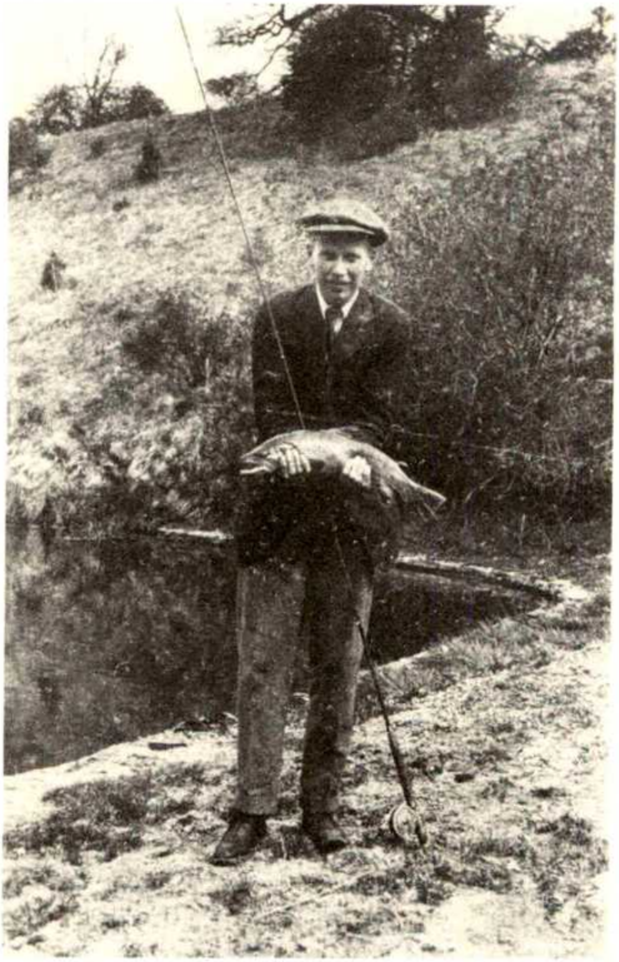

Figure 1. Revere with trout at Cornbury Park lake.

Walton's *Compleat Angler* presented to him in September, 1913. A photograph is preserved of two trout weighing four and one-quarter and four and one-half pounds caught with a fly June 21, 1914. In May, 1917, while on leave in England, he caught a record trout at Cornbury Park Lake (Figure 1).

Osler apparently also used Revere's interest in fishing to try to develop a wider one in natural history in general such as he had had in Canada while young. In 1908 while in Paris, he borrowed a microscope for a joint field excursion. The following year Osler and Revere investigated a pond in Oxford, but neither occasion kindled the boy's interest. Osler concluded Revere would never be a scientist.

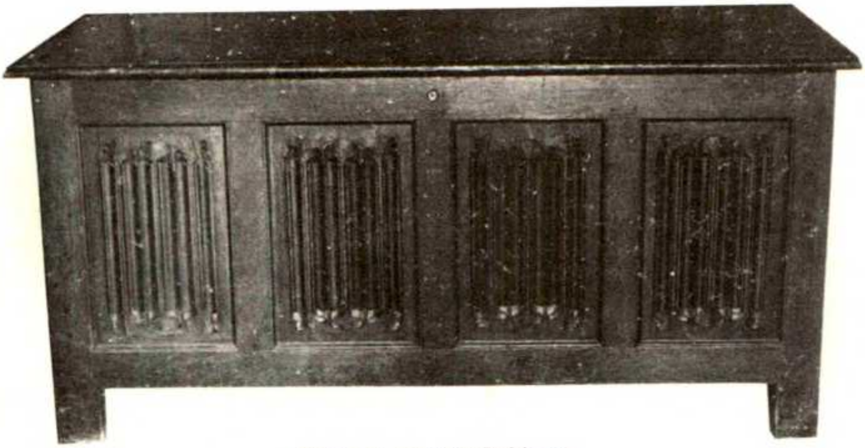

Figure 2. Chest in Baltimore.

Cabinet work. At an early Christmas in Baltimore, probably 1898 when he was three, Revere was given a set of carpenter's tools. A letter from his mother describes the son and father happily driving nails into the floor and furniture. A reply from the grandmother supposes the early use of tools will later turn his attention to architecture, an interesting prediction in view of his etching subjects as a teenager.[6] No other written record has been found of this long term interest in carpentering, but Revere included some tools on his bookplate. A letter by Osler in August, 1912, mentions Revere as a "good carpenter." He more properly should be considered an amateur cabinetmaker, as judged by several existing pieces of his work. Members of the Revere family in Massachusetts have a dark finished chair-side carved magazine or book rack, and a small light finished chest on tall slender legs with two inlaid doors over three narrow drawers. A larger dark finished chest with hinged lid similar to those used to store toys or blankets at the foot of a bed is in the Tudor and Stuart Club room on The Johns Hopkins University Homewood campus in Baltimore. The sides are carved in a vertical pattern similar to the magazine rack (Figure 2). The work table he used, said to be Jacobean, is in the Osler Library at McGill University in Montreal.

Art. Revere was a direct descendant of the famous American silversmith, Paul Revere. His mother did some simple sketches to illustrate letters, so his artistic interest and talent had a long family background. Early examples of his work are simple line drawings of a head and the wings of insects, probably done in Oxford during the summer of 1910. He had been avidly collecting butterflies and moths from age 12. Several simple drawings of fish have been preserved.

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[6] E. Osler to Grace Revere Osler, letter (copy) 1899. Acc. 417/95, the Osler Library, McGill University, Montreal.

During the spring of 1912, the family visited northern Italy and Osler introduced his son to some features of architecture. Revere made sketches in Florence and took photographs in Venice of friezes, gargoyles and other details, but none of these were found. This interest grew after the family returned to England and Revere expanded his interests to etching. Miss Marion Wright, a young Canadian student in Oxford, was a close friend of Revere whom she described as artistic. He etched in his room at Christ Church College and often had her critique his work. Miss Margaret Revere, a niece of Lady Osler, inherited a print of one of his etchings, the only known surviving one made by Revere himself (Figure 3). The print is unsigned, the subject is not identified on it, nor did Miss Revere know what it was. A photograph of the etching was made and sent to various people in England, Canada and the States, asking if they recognized the subject. It was assumed to be a doorway in Oxford, possibly at 13 Norham Gardens, but all replies were negative for "The Open Arms" as the location and no one in Oxford could identify a similar place in the colleges.

While reviewing the books in the Tudor and Stuart Club room, it was discovered that a cardboard box which might contain memorabilia was in the files of the English Department. When examined, this box was found to contain six small manila envelopes which held copper plates of etchings not previously recognized. On the front of each in an unidentified handwriting was the statement that the plates were done by Edward Revere Osler. The plates vary in size from 8 × 4½ to 3½ × 2½ inches. The subject of the largest is identified as Merton College, Oxford, with other envelopes being labeled Oxford Castle, Norfolk, Doorway in Norwich. Two plates are not identified and one of these is labeled "cancelled." That plate is scored with parallel lines across it and contains several spots which might have been caused by acid drops. The envelopes are not dated, but the etchings probably were done between 1913-14 when Revere was 18-19 years old. All are of architectural subjects and the print of Miss Revere's was from the Norwich plate which measures 7 × 3½ inches.

This information was transmitted to Dr. A. H. T. Robb-Smith who had tried unsuccessfully to identify the subject of Miss Revere's print in Oxford. He recalled that Revere had been tutored in the Norfolk-Norwich area. He had in his library a book containing water colors by E. W. Hazelhurst, including one of Stranger's Hall, originally a 15th-century

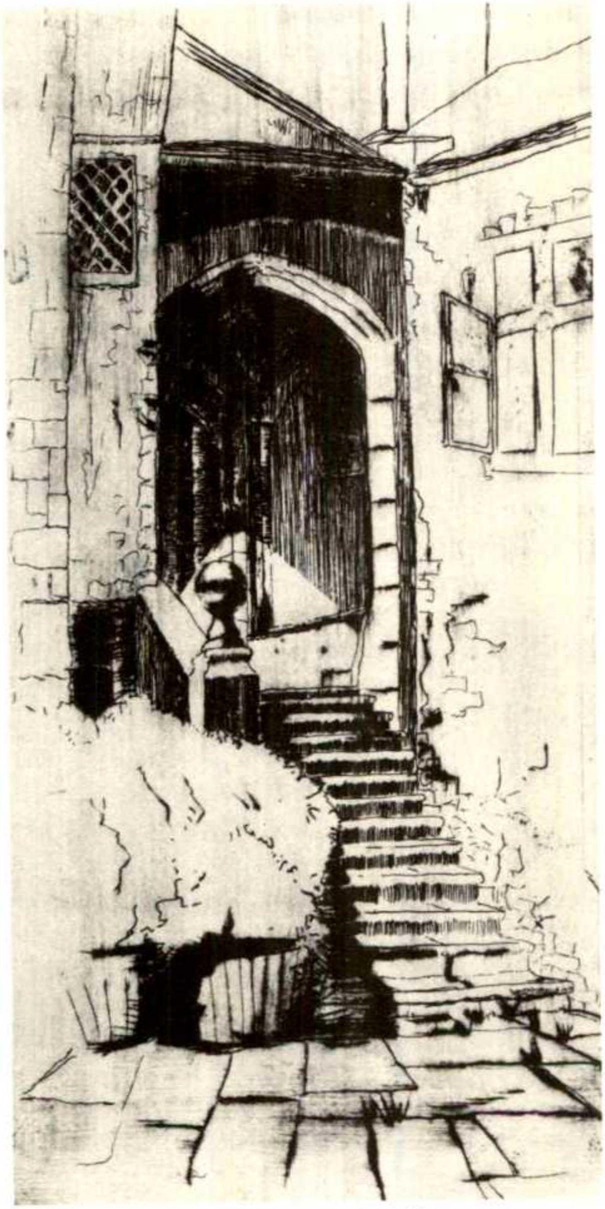

Figure 3. Etching now in Baltimore.

home of a merchant and now a folk museum. He identified it as the subject. A photograph of the painting shows that Revere etched the doorway so that the print is a mirror image with a few small deviations in the windows.

Osler had predicted in letters that his son would become an architect or an artist, since he was not a scholar. In one he mentions that Revere was etching from sketches, but does not identify the subjects. Osler wanted prints to send as Christmas gifts, but Revere refused. It is possible that Sir William saw prints of one or more of the plates found. No plates or prints of etchings of known Italian subjects have been located, or are known actually to have been made. If they were, Revere must not have been satisfied with them. It is also possible that the cancelled plate and the other unidentified one might be of Italian rather than English subjects. The six plates were transferred in late 1979 from the Homewood campus to the Alan Mason Chesney Archives of The Johns Hopkins Medical Institutions.

In 1913, at age 18, Revere drew his bookplate.[7] The wood-mounted metal cut of the original is with the etching plates. In January, 1916, after his interest in books had grown, he began a small volume with blank pages to list his new accessions. He noted the date, place of purchase, author, title, price and occasionally other comments. The last entry is May 12 of the same year. The title page is beautifully done by pen in sepia ink. It is interesting that he used his first name Edward here, since on other occasions he signed himself E.R., E. Revere Osler, or simply Revere.

Books. From early childhood, Osler took Revere on his book hunting expeditions. He always had hoped that his son would be infected with his own enthusiasm for collecting classics. The interest was a long time developing. Revere's first purchase at an auction resulted from a bid in December, 1913, of £1 to Sotheby's for Landor's *Pericles and Aspasia.* Poetry, especially that of Spenser and Shelley, appears to have interested him. There is no documentation of earlier gifts or purchases in the 1916 list.

After Revere's death, on October 30, 1918, Sir William and Lady Osler gave to The Johns Hopkins University an endowment of securities realizing between $1500-$2000 per year to encourage students in the study of English literature of the Tudor and Stuart periods. The gift was a memorial to their son in recognition of the family's happy years in Baltimore. Revere's books were to be donated as the nucleus of an English departmental and literary club library. They were sent in March, 1922, and the club was started in early 1923. The books were mainly English literature and history, poems and sonnets and included four volumes of Spenser and a number by and about Shelley. Osler added some of his own

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[7] Thomas E. Keys, "Edward Revere Osler: 1895-1917," *Arch. Int. Med.*, 1964, *114:* 284-293.

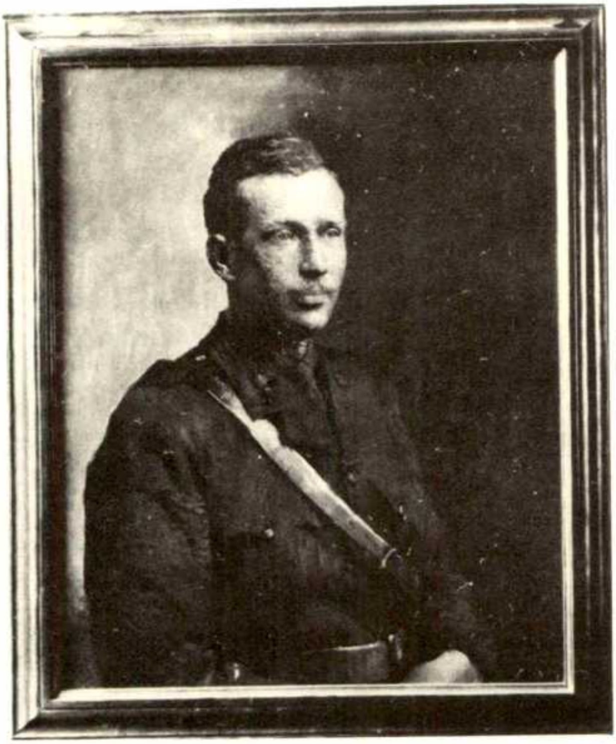

Figure 4. Portrait in the Tudor and Stuart Club, Baltimore.

books on general literature, including ones by Milton, Shelley, Keats and Fuller. Many books were about fishing, including ones by Walton. Revere's Bible and the 100,000th copy of Osler's *Textbook* which his father had given him were sent. On her death, Lady Osler willed an additional £2000 to the endowment and sent 79 more of Revere's books. The collection now included some volumes on drawing, engraving, architecture, war, the priesthood and Walt Whitman.

The club room was fitted out in Stuart style by Mrs. Robert Brewster with oak paneling and a fireplace. A portrait by Marie Page of Boston of Revere in uniform was hung January 22, 1926 (Figure 4). The club still sponsors an annual lecture. Its archives included, in addition to items mentioned previously, Revere's two army commissions, scrolls and letters about his death, three medals with ribbons, and a program of the memorial service held January 20, 1924, at St. James Church, Dundas when a tablet was dedicated to three Oslers. These memorabilia were transferred in 1979 to the medical school archives along with the etching plates.

Military service. From the beginning of the war, both Sir William and

Lady Osler had premonitions that it would bring tragedy. Many students at Oxford, sons of Canadian relatives or friends, were being killed or wounded. Revere was urged to enter and remain at Christ Church but the pressures of the times weighed heavily on his conscience. He could not talk to his father about it, but confided in his mother. In September, 1914, he entered the Officer's Training Corps in Oxford and attended the Public Schools camp at Salisbury. His first try for a commission failed, since he was judged "too immature." In January, 1915, he intended to enlist as a private in the Universities Public School Regiment. (Revere in a letter calls it "Public Schools batallion" (sic), while Cushing lists it as Inns of Court Corps.) His parents had learned that the McGill Hospital unit was organized and scheduled to come to England in the spring. By cable, Revere was offered an appointment as orderly to the Commanding Officer. On February 15, 1915, a commission was issued to "Revere Osler, Gentleman" as Honorary Lieutenant (Temporary) in the Canadian Militia. He was assigned as a quartermaster for supply duty to the base in Cliveden where the unit came in May. The hospital moved to France in June, but Revere was not happy with the lack of action. He applied for assignment to an ambulance corps in December, but continued to press for transfer to a fighting unit.

On April 28, 1916, a commission was issued to "E. R. Osler," 2nd Lieutenant in the Land Forces. It is stamped TEMPORARY at the top in red. On the folded front, the branch is listed as Royal Horse and Royal Field Artillery. Revere returned to England for training, then went back to France and immediately into action. In spite of living in trenches and his revulsion at the death and destruction around him, he seemed happier. Many letters addressed to "Muz or Dad" about his war experiences are preserved. On August 29, 1917, the day was quiet and Revere was helping bridge a shell hole to move his battery closer to the front lines near Ypres. Without warning about 4:30 in the afternoon, a 4.2 inch shell, which none of the 20 men working had heard coming, made a direct hit. Revere was severely wounded along with his commanding officer and six men. One fragment of the shell traversed the upper abdomen cutting holes in the colon and mesenteric vessels. Another penetrated the chest just above the heart and two others the thigh, but the femur was not fractured. Cushing was notified, which Revere's mother had expressed hope for in a letter several weeks earlier, and came immediately to aid Revere. A transfusion was done and the abdomen opened about midnight to stop the bleeding, but Revere died about seven the next morning. He was buried near Poperinghe in Belgium. The original wooden grave marker has been replaced by a stone one.

Osler was working in his library late in the afternoon when the telegram came telling of the wound. A phone call at nine that evening confirmed Revere's death. Neither parent ever recovered from the tragedy. Though Osler considered having the body exhumed, cremated, and the ashes sent to the Tudor and Stuart club library, Lady Osler did not agree and it still remains buried in a Flanders Field.

Acknowledgments

Miss Marilyn Fransiszyn of the Osler Library, McGill University, Montreal, has furnished invaluable assistance in the collection of material for this paper, including photographs. Miss Margaret Revere, Chestnut Hill, Massachusetts, furnished photographs of cabinet work and presented the author with the print of the Norwich etching. Miss Marion Wright, Montreal, graciously consented to interviews. Dr. A. H. T. Robb-Smith, Woodstock, Oxfordshire, England, identified the subject of the Norwich etching. The English Department, The Johns Hopkins University, permitted review of the books and kindly furnished photocopies of material in the Tudor and Stuart club archives. John E. Sparks, Head of the Department of Prints, Maryland Institute College of Art, Baltimore, cleaned the plates and made new sets of prints.

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE REPORT OF THE FIFTY-THIRD ANNUAL MEETING

Boston, Massachusetts
April 30-May 3, 1980

The Fifty-third Annual Meeting of the American Association for the History of Medicine was held in Boston, Massachusetts, April 30-May 3, 1980. Sessions were held at the Park-Plaza Hotel. Preceding the meeting a Medical History Tour of Boston was sponsored by the Department of Continuing Education, Boston University School of Medicine (four Category I credits) and the Doris Appel History of Medicine Room was dedicated at the Boston University School of Medicine.

The following report which includes the program, abstracts of the minutes of the Council and Business Meetings, as well as the financial report for fiscal year 1978-79, has been prepared by the Secretary-Treasurer, Dr. Robert P. Hudson, and is intended for the information of the members of the Association. The official minutes and financial report are preserved in the office of the Secretary-Treasurer.

PROGRAM

Wednesday, April 30

6:00 p.m. Registration and Welcoming Reception
7:45 p.m. Council Meeting

Thursday, May 1

9:00 a.m. General Session
George E. Gifford, Jr., *presiding*
Opening Remarks
Presidential Address: "Putting Lady Mary in Her Place," Genevieve Miller
10:30 a.m. Medical Education
Toby Gelfand, *presiding*
"Physician in Transition: The Ante-Bellum Medical Education of Courtney J. Clark," James F. Gifford, Jr.
"The Reform of Medical Education in France, 1870-1914," George Weisz
"Scientific and Clinical Orientations in the History of American Medical Education," William G. Rothstein
12:15 p.m. Luncheon Workshops
1. "Some Experiences of a Medical Historian," Saul Jarcho
2. "An Oral History of the Child Development Movement:

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Origin and Creation of the Source Material," Milton J. E. Senn and Manfred Waserman
3. "New Thrusts in North American Local Medical History," John K. Crellin and John H. Ellis
4. "Book Collectors and Collection—Art, Science, Luck," K. Garth Huston
5. "Writing Physician Biographies," James Reed and Peter C. English
6. "Ancient Medicine," John Scarborough

2:00 p.m. Hospital Practice
Frank B. Rogers, *presiding*
"Caring for Hospital Patients: Clinical Records from the Royal Infirmary of Edinburgh, 1780-1784," Guenter B. Risse
"Stealing the Golden Eggs: Ernest Amory Codman and the Scientific Management of Medicine," Susan Reverby

3:20 p.m. Pediatrics
Jo Ann Carrigan, *presiding*
"Marasums and Magic in Pascal's Infancy," John R. Cole
"The Pediatric Practice of Governor John Winthrop, Jr., of Connecticut," Thomas E. Cone, Jr.

4:40 p.m. The Fielding H. Garrison Lecture
Genevieve Miller, *presiding*
"The Odyssey of Smallpox Vaccination," John Z. Bowers

Friday, May 2

9:00 a.m. Session A. Invited Symposium on Problems in Writing Social History of Medicine in Non-Western Areas
Donald B. Cooper, *presiding and commenting*
"Rural Health Centers in Early 19th-Century Egypt," Laverne Kuhnke
"The Rural Health Care Delivery System in Punjab Province, 1854-1929," John Hume
"Tuberculosis in the Sudan in the 20th Century," Gerald Hartwig
"In Pursuit of Elusive Epidemics: Cerebrospinal Meningitis in West Africa, 1905-1960," K. David Patterson
Session B. Body and Mind Through the Ages
Stanley W. Jackson, *presiding*
"The Structure and Nature of the Human Body: Cicero's Teleological View," Joanne H. Phillips
"The 'Influence of the Mind upon the Body': Anglo-American Theories, 1800-1890," Robert C. Powell
"An American Treatment for the 'American Nervousness': Beard and Rockwell's General Electrization," Edward M. Brown

11:00 a.m. Session A. Humoralism, Ancient and Modern
Estelle Brodman, *presiding*

"Melancholia and Black Bile: Some Fantasies About Facts," Bennett Simon

"Humoralism and Social Development in the English Americas," Gary Puckrein

Session B. Early 19th-Century Scientific Medicine
Otto Marx, *presiding*

"Bright's Generation and Bright's Disease: Towards Exact Medicine at Guy's Hospital," Steven J. Peitzman

"Influences of French Pathological Anatomy on English Medicine, 1816-1836," Russell C. Maulitz

12:15 p.m. Luncheon Workshops

1. "Resources in Nursing History, With Special Attention to Boston," Janet James, Virginia Deforge, Eleanor Hermann, Virginia Henderson

2, 3, 4, 5 and 6. (repetition of those presented on May 1)

2:00 p.m. Session A. Images from Medieval and Renaissance Times
Vern L. Bullough, *presiding*

"Medieval Visionary Experiences and Psychopathology," Jerome Kroll and Bernard Bachrach

"Vesalian Figures and Niches of Honor in 17th-Century Title-Page Allegory," William B. Ashworth, Jr.

Session B. Aspects of the Modernization of Medicine
Paul A. Nelson, *presiding*

"The Role of the Physical Examination in the Rise of American Medical Technology," Audrey B. Davis

"John Abel and the Early Development of Pharmacology at Johns Hopkins University," John Parascandola

3:20 p.m. Session A. Diseases
Allen C. Wooden, *presiding*

"*Cytoryctes Variolae:* Morphology of a Nonexistent Protozoan," Jeffrey D. Hubbard

"Tokelau: Mycological, Geographical and Anthropological History," John E. Wolf, Jr.

Session B. Nineteenth-Century American Medicine
Eugene H. Conner, *presiding*

"Boston and Philadelphia and Childbed Fever: Another Look At a Famous Story," W. Robert Penman, Dorothy I. Lansing, and Dorland J. Davis

"Science Vs. Art: A Comparison of the Medical Ideas of Mary Putnam Jacobi and Elizabeth Blackwell," Regina Markell Morantz

4:40 p.m. Business Meeting
Genevieve Miller, *presiding*

8:00 p.m. Banquet

Saturday, May 3

9:00 a.m. Dimensions of Medical Concern
Rosemary Stevens, *presiding*

"The Castrati Choir and Opera Singers," Meyer M. Melicow
"The Intellectual Origins of Osteopathic Medicine," Norman Gevitz
"Primary Care in American Medicine Since 1940," Theodore M. Brown

10:50 a.m. Medical Police in Different Ages
James H. Cassedy, *presiding*
"Plague Legislation in the Italian Renaissance," Ann G. Carmichael
"The Medical Profession, Corporatism, and Illegal Practice in France, 1892-1906," Matthew Ramsey
"The 'Germ of Laziness' and the Germ Theory of Disease: Frederick T. Gates and the Evangelical Basis of the Rockefeller Sanitary Commission," John Ettling

MINUTES OF THE ANNUAL MEETING OF THE COUNCIL

April 30, 1980

The annual meeting of the Council of the American Association for the History of Medicine, Inc. was called to order at the Park Plaza Hotel, Boston, Massachusetts at 7:45 p.m. on April 30, 1980. President Genevieve Miller served as Chairman and Robert Hudson as Secretary. The following Council members, officers, and committee chairmen were present: John Blake, Gert Brieger, James Cassedy, John Duffy, Gerald Grob, Caroline Hannaway, Saul Jarcho, Robert Joy, John McGovern, Ronald Numbers, Ynez O'Neill, Robert Penman, Guenter Risse, Charles Roland, Arthur Viseltear and Daniel Weiss.

The minutes of the last meeting, as circulated to the Council, in May 1979, were approved. An abbreviated version was published in the Summer 1979 issue of Volume 53 of the *Bulletin of the History of Medicine*.

Dr. Miller announced that the Council had approved by mail ballot, the nomination of Dr. Saul Jarcho to fill the unexpired Council term of Dr. Wilhelm Moll, and spoke for the Council in expressing regrets over his unexpected demise.

At the Council's direction, Dr. Miller had contacted the American Council of Learned Societies regarding the possibility of membership by the Association. She learned that the organization now has over 40 constituent members and is reluctant to add more, although the matter of formal application was left open. After discussion concerning the limited benefits accruing to such membership the matter lapsed quietly.

Dr. Miller also announced that Dr. Donald Bates, while visiting the Peking Medical College, had been assured that the Association would welcome Chinese applicants for non-resident membership in the Association. To date there have been no overtures.

The Secretary reported that the first billing for Association dues had gone without significant problems under the arrangement with Mr. Neale Watson. At the end of fiscal 1979 there were 101 new regular and non-resident members, 12 students, and a total membership of 829.

Dr. Hudson presented the financial report for the Fiscal Year 1978/79, ending

October 31, 1979. The financial report was approved for presentation at the Business Meeting and the President appointed Doctors John Blake and John McGovern as Auditors.

Dr. O'Neill indicated that the reaction to the *Newsletter* has been encouraging, to say the least, and that the three issues of the first year had come in well under the $1,000 budgeted by the Council. There was agreement that the publication should not be subsidized by commercial ventures. The question of distribution to non-members was resolved as follows: requesting libraries will be supplied copies *gratis;* individuals will receive one copy free and an application blank for Association membership.

On Dr. Joy's motion the Council thanked Dr. O'Neill and her associates for all the effort involved in this successful venture.

Dr. Risse described the encouraging results of his trip to Mexico, Guatemala, Venezuela and Peru to investigate the status of medical history in Latin America. He recommended a new membership category to be known as corresponding members, who would be exempt from payment of dues, have no voting power and no *Bulletin* subscription. The question was raised that this function was already handled reasonably well by our category of non-resident membership. The matter was referred to the Membership Committee for consideration at the 1981 Council Meeting.

Dr. Miller announced that the 1981 Garrison lecturer will be Dr. Abraham M. Lilienfeld. Dr. Morris Saffron chaired the Committee.

The William H. Welch Committee (Jerome Bylebyl, Chairman) recommended and the Council approved by mail vote Dr. John Blake as the 1980 recipient of the Welch Medal for "his valuable scholarly contributions to the history of medicine, and for his leadership in the advancement of the discipline."

The William Osler Medal Committee (John McGovern, Chairman) recommended and the Council approved the awarding of the 1980 Osler Medal to John Wright, a third-year medical student at Northwestern University for his paper, "Ship Fever in the Steerage: Medical Aspects of the Irish Migration."

After discussion the Council decided to change the Osler prize from the present $200 honorarium and $200 travel expenses to a maximum of $500.00, the total to be awarded for defraying the expenses of winners who choose to receive their medals in person.

There followed a discussion of the recurring problem of eligibility for the Osler Medal competition. The principal impetus for enlarging the categories of those eligible continues to come from the organization of podiatry students. The incumbent Osler Medal Committee recommended that the competition remain open only to students of medicine and osteopathy. An *ad hoc* group entitled the Osler Medal Review Committee was appointed to study the matter and consists of Ronald Numbers, Daniel Weiss and Arthur Viseltear, Chairman.

The Loeb Library Committee (Saul Jarcho, Chairman) reported that according to Dr. Paul Potter, the text and translation of Hippocrates Volume V should be completed by April 1980 and that the index is almost complete. Plans have been made for preparation of Volume VII. Professor Wesley Smith is understood to be making satisfactory progress with Volume VI.

Dr. Miller reported for the Chairman of the Education Committee, Dr. Dora

Weiner. The Committee has been involved in exploiting the findings of the national survey of history of medicine teaching at the college level. One result will be an essay on "Teaching the history of medicine to college students" to appear in the *AHA Newsletter*. There is also the possibility that a booklet on the history of medicine will be published in the *AHA Pamphlet Series*. The Committee suggested teaching medical history at the college level as a possible topic of a luncheon workshop for the next meeting of the Association.

The Editorial Committee (John Blake, Chairman) announced the publication of the second of the *Henry E. Sigerist Supplements to the Bulletin of the History of Medicine* which was assisted by a subvention from the Association, this being *William Harvey and His Age: The Professional and Social Context of the Discovery of the Circulation,* edited by Jerome Bylebyl. Another Supplement, Philippe Pinel, *The Clinical Training of Doctors: An Essay of 1793* edited and translated by Dora Weiner is expected to appear in the Fall of this year.

The Program Committee (John Burnham, Chairman) indicated that 81 abstracts were received in time for the 1980 Committee deliberations, of which 28 were accepted for presentation, including a large percentage of abstracts submitted by M.D.s.

Dr. Caroline Hannaway, Assistant Editor, reported that with the imminent appearance of the Spring number, the *Bulletin* is very nearly back on schedule.

Pat Paterson described plans underway for the 1981 meeting of the Association in Toronto.

Dr. Miller announced that the International Society for the History of Medicine will hold its 1982 meeting from August 29 to September 3 in Paris. Six applicants were recommended by Council for membership in the International Society.

The Council approved constituent membership for "The History of Medicine Group—Stony Brook, New York."

Doctor James Cassedy observed that it was time for a new version of "Research in Progress" and wondered if the Council saw sufficient merit in the publication to justify the work involved on his part. He was roundly assured that such indeed was the case.

Dr. Miller announced that the Association had been invited by Dr. Leonard Wilson to hold the 1983 meeting in Minneapolis. The Council accepted the invitation with gratitude and alacrity.

The report of the Nominating Committee was received and referred to the Annual Meeting on May 2.

The Council adjourned at 11:10 p.m.

Robert P. Hudson
Secretary-Treasurer

MINUTES OF THE ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, INC.

May 2, 1980

The Annual Meeting of the American Association for the History of Medicine, Inc. was held in the Park Plaza Hotel, Boston, Massachusetts, at 4:40 p.m. on May

2, 1980. Genevieve Miller, President of the Association, served as Chairman, and Robert P. Hudson as Secretary.

The minutes of the previous meeting were approved. Dr. Hudson read the names of members who had died since last May. They are as follows:

Lawrence M. Green, Wayne, New Jersey
Esmond R. Long, Philadelphia, Pennsylvania
Wilhelm Moll, Charlottesville, Virginia
F. N. L. Poynter, London, England

The members rose for a moment of silence.

A summary of the discussions held and decisions made at the Council meeting April 30 was presented by the Secretary-Treasurer, who then presented a summary of the Financial Report for the fiscal year 1978/79. The Auditing Committee (John Blake, Chairman) reported that the books were in order, and the reports of the Treasurer and auditors were approved. The generous donation, by John P. McGovern, of $500 to the Endowment Fund was acknowledged with gratitude.

Old Business

The President commented briefly on the activities of various committees.

New Business

The Garrison Lecture Committee has recommended and the Council approved the nomination of Dr. Abraham M. Lilienfeld as Garrison Lecturer for 1981.

The President called on Pat Paterson, who, as Chairman of Local Arrangements, welcomed the Association to Toronto for its 1981 annual meeting. Dr. Miller then announced that the Association will meet in Washington/Bethesda in 1982 and that the Council had accepted an invitation from Leonard Wilson to meet in Minneapolis in 1983.

The following officers were elected unanimously:

Vice-President:	James Cassedy, Washington, D.C.
Members of Council:	Jeanne Brand, Washington, D.C.
(3-year term)	Theodore Brown, Rochester, New York
	Jacques Quen, New York, New York
	A. Claire Siddall, Oberlin, Ohio

Dr. Miller recognized Dr. Brieger as incoming President. Enthusiastic gratitude was extended to the Program Committee chaired by John Burnham, and to the Local Arrangements Committee, led by George E. Gifford, Jr. for the exemplary meeting in Boston. The meeting closed at 5:15 p.m.

Robert P. Hudson
Secretary-Treasurer

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, INC.

Financial Report on the Fiscal Year 1978/79
Ending 31 October 1979

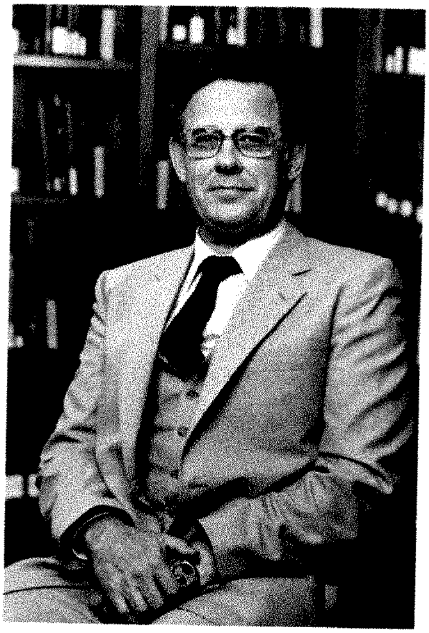
Classified Statement of Receipts and Expenditures
1 November 1978—31 October 1979

General Fund

RECEIPTS		
Dues		
Active Members (all categories)	$15,349.75	
Constituent Societies	650.00	
International Society for the History of Medicine	1,180.00	
		$17,179.75
Education Committee Report		440.00
Director & Mailing Lists		17.00
Loeb Library Grant, HEW		4,500.00
Donation (J. P. McGovern)		500.00
Refund from Johns Hopkins University Press		167.50
Refund Bulk Mailing Deposit		400.00
Transfer from Publication Fund		2,030.00
	1978/79 Total Receipts	25,234.25
	Balance 1 November 1978	4,259.18
		$29,493.43
DISBURSEMENTS		
Subscription to *Bull. Hist. Med.*		11,705.25
Subsidy, Bylebyl, *Harvey*		2,030.00
Administrative expenses		2,679.65
Dues Refunds, NSF cheques, bank charges		110.47
Honors & Awards		
Osler Medal		467.88
Welch Medal		37.25
Garrison Lecture		770.15
HEW Grants		
Wesley D. Smith		4,500.00
Paul Potter		370.00
Education Committee Report		831.15
Transfer to Int. Soc. Hist. Med.		950.00
State of New York		10.00
	1978/79 Total Disbursements	24,431.80
	Balance 31 October 1979	5,061.63
		$29,493.43

MEDICO-HISTORICAL NEWS AND ACTIVITIES

APPOINTMENTS IN THE HISTORY OF MEDICINE



University of British Columbia

John Norris has been appointed Professor and Director of the Division of the History of Medicine and Science in the Faculty of Medicine, University of British Columbia, effective July 1, 1980. Professor Norris has written a number of articles on the History of Medicine and is at present engaged in a major study of the population dynamics of plague and its retrogression from western Europe in early modern times. He is also undertaking a study of the history of rural practice in British Columbia and western Canada.

Under Dr. Norris's direction, the Division of the History of Medicine will provide courses in the history of medicine and the health sciences for students in all the health sciences, as well as graduate studies in early modern history of medicine, drawing on the impressive historical collection in the Woodward Biomedical Library.

Professor Norris received his undergraduate training at the University of British Columbia and his graduate training at Northwestern University and the University of London. He has been a member of the Department of History at U.B.C. for the past 27 years, during which time he published a number of books and articles in administrative and economic history and the history of population. Since turning to the history of medicine he has been Visiting Professor in the History of Medicine at the Institute of the History of Medicine, the Johns Hopkins University, 1975 and an I. W. Killam Fellow, 1975 and 1976.

LETTERS TO THE EDITOR

The Guildhall
Caughnawauga, Quebec
August 7, 1980

Sir:

As a member of the family most closely connected with Sir William Osler, I am of course keenly interested in all things Oslerian and especially The Osler Library of McGill University. As one might expect, I received from the Library's Curators

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0007-5140/80/0544-0580 $01.00 © 1980 by The Johns Hopkins University Press

a complimentary copy of the book entitled *The Osler Library*, published in 1979. It is a magnificent piece of work, surely a product of McGill at its best. The elegance of its design and the beauty of its illustrations are happily matched by the grace and eloquence of the accompanying descriptive prose. My only regret is that my dear grandfather and father are not here to see it. In view of my admiration for this remarkable achievement, it will not surprise you to learn that I eagerly read all the relevant reviews and I was especially pleased by George T. Harrell's assessment which appeared in the Summer, 1980 issue of your *Bulletin*.

However, I feel compelled to offer a few comments, not as a criticism of Dr. Harrell's review of the book itself, but as a supplement to his brief introductory remarks concerning the history of the Osler Library. Harrell suggests that the main sources of books, apart from Osler's original bequest, have been transfers from the McGill Medical Library and purchases funded by the University and Friends of the Osler Library. This overlooks many other sources such as gifts of moneys and books from Casey Wood, Frank Dawson Adams, the Davis family, and the Wellcome Trust, to name but a few. Also Dr. Harrell seems to imply that the Francis Wing is the only significant addition to the space in recent years. This overlooks the expansion which took place with the move to a new building in the 1960s, involving the transfer of the original Osler Library room (made possible by a generous grant from the Markle Foundation), and the addition of the spacious Wellcome Camera. My family has followed these developments with the greatest of interest and this is my excuse for writing this rather lengthy note.

Finally, to return to Dr. Harrell's review of the book itself, it was kind of him to decline to mention two obvious errors which I spotted easily on first reading and could not have escaped his notice—an illustration printed upside down and a mistake in spelling, the latter on page 51.

Yours truly,

Egerton Yorrick Davis III

C.-E. A. WINSLOW PAPERS

The Contemporary Medical Care Collection Project, Yale University Department of Manuscripts and Archives, has recently completed arranging the papers of Charles-Edward Amory Winslow (1877-1957), who by the time of his death was recognized nationally as the elder statesman of the American public health movement. In his various roles as teacher, consultant, editor, policy formulator and writer, Winslow made significant contributions in nearly every area of public health, including bacteriology, epidemiology, public health administration and education, environmental and occupational health, nursing education, and medical care. Winslow held regular faculty appointments in the Massachusetts Institute of Technology (1900-1910) and the City College of New York (1910-1914) before accepting appointment as the Anna M. R. Lauder Professor of Public Health in Yale University in 1915, where he founded the Department of Public Health and served until his retirement from teaching in 1945.

The Winslow Papers consist of fifty-six feet of general correspondence, organization and subject files, teaching materials, photographs, travel diaries, and draft manuscripts. The Papers document the development of the public health movement in this country and, to a lesser extent, in Europe during Winslow's lifetime, and they provide the most complete coverage for the years between 1915 and 1945. The correspondence documents his contacts and interactions with a wide variety of public health teachers and practitioners in this country and abroad, former students, and others interested in health and social welfare issues. Of special significance in terms of content and volume is the correspondence with Reginald M. Atwater, Leona Baumgartner, Frank Boudreau, Mary C. Breckinridge, Charles V. Chapin, Hugh S. Cumming, Michael M. Davis, Louis I. Dublin, Martha Eliot, Haven Emerson, Isidore S. Falk, Homer Folks, Franz Goldmann, Annie Goodrich, Selskar Gunn, John Kingsbury, Harry H. Moore, Adelaide Nutting, Thomas Parran, William T. Sedgwick and George E. Vincent.

The organization files most fully reflect the catholicity of Winslow's interests and activities in public health. The series is made up of twenty-six feet of correspondence, minutes, administrative reports and other papers from more than seventy-five different organizations, including professional associations, voluntary public health organizations, study commissions, and government agencies and committees. The papers of the American Public Health Association and the Committee on the Costs of Medical Care are especially important. The A.P.H.A. files span Winslow's entire career and document his activities as president of the association, chairman of several major committees, and, from 1944 to 1954, editor of the *American Journal of Public Health.* The Committee on the costs of Medical Care materials consist of both Winslow's personal files as vice-chairman and chairman of the Executive Committee and a portion of the official papers of the organization. The C.C.M.C. materials include a large amount of correspondence, a nearly complete run of minutes, and other papers documenting policy formulation and the writing of the Committee's controversial final report.

Of the topics covered in the other organization and subject files, nursing and nursing education, environmental and occupational health, mental health, and health insurance are well represented. Significant amounts of material are available for the American Social Hygiene Association, American Society of Heating and Ventilating Engineers, Committee on the Grading of Nursing Schools, Connecticut Department of Health, Connecticut Society for Mental Hygiene, League of Nations and League of Nations Association, Milbank Memorial Fund, National Organization for Public Health Nursing, Organizing Committee for Social Union, Planned Parenthood League of Connecticut, and Rockefeller Foundation.

Other materials in the Winslow Papers include drafts of his writings, especially texts and notes for speeches; biographical and family papers; and committee teaching files from his tenure at Yale. The latter provide information on the reorganization and development of the School of Medicine in the 1920s and the 1930s, as well as the organization and operation of the Department of Public Health. Included among the photographs in the papers is a comprehensive and richly annotated photographic journal of Winslow's travels with the American Red Cross Mission to Russia in 1917.

This project was supported in part by Grant LM 03072 awarded by the National Library of Medicine.

R. JOSEPH ANDERSON

ANNOUNCEMENTS

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE

Committee Chairmen—1980-81

Garrison Lecture Committee—James Harvey Young
Nominating Committee (two years, 1979-81)—Lester King
Editorial Committee (two years, 1979-81)—John Blake
Osler Medal Committee—Steven Peitzman
Program Committee—William Coleman
Education Committee—Ronald Numbers
Loeb Library Committee—Saul Jarcho
Membership Committee—James Cassedy
Welch Medal Committee—Charles Rosenberg

Osler Medal Essay Contest, 1981

Students in schools of medicine and of osteopathy of the United States and Canada and graduates of the class of 1980 are invited to enter the William Osler Medal Essay Contest. Essays in the history of health sciences, of a maximum length of 10,000 words, must be submitted by February 1, 1981, to the Chairman of the Osler Medal Committee of the American Association for the History of Medicine: Steven J. Peitzman, M.D., 475 West School House Lane, Philadelphia, PA 19144. Further information about rules and eligibility may be obtained from Dr. Peitzman.

NATIONAL NEWS

Boston, Massachusetts

The Boston Society of Psychiatry and Neurology devoted its centennial meeting on October 16, 1980 to a seminar on the History of Neurology. Participants included Drs. Joseph Foley, Raymond Adams, Derek Denny-Brown, Samuel Epstein, Harry Solomon, John Sullivan, William Sweet, and Paul Yakolev.

The Brooklyn Hospital Archives Department

In 1978 the Brooklyn Hospital established an Archives Department. The hospital was founded in 1845, the second voluntary hospital in Greater New York. Archival material collected includes minutes of the Board of Trustees from 1845 to now, annual reports of Superintendents, nineteenth-century clinical records, records of the Social Services Department and the Department of Nursing, records of related hospitals and dispensaries, and financial records. For information contact Dr. Edwin P. Maynard, The Archives Department, The Brooklyn Hospital, 121 Dekalb Avenue, Brooklyn, New York 11201.

Cheiron

The thirteenth annual meeting of Cheiron, the International Society for the History of Behavioral and Social Sciences is to be held at the University of Wisconsin, River Falls, Wisconsin, June 10-13, 1981. Papers may deal with aspects of the history of any of the behavioral and social sciences. Information about the program may be obtained from Dr. Theodora J. Kalikow, Department of Philosophy, Southeastern Massachusetts University, North Dartmouth, MA 02747.

Eleventh Symposium on Philosophy and Medicine

The Eleventh Symposium on Philosophy and Medicine, "Responsibility in Health Care," will be held in Springfield, Illinois on March 16-18, 1981. The program is sponsored by the Department of Medical Humanities, Southern Illinois University School of Medicine and St. John's Hospital, Springfield, Illinois. Major speakers will include George Agich, Theodore Brown, Edmund Erde, Richard Flathman, Stanley Hauerwas, Christine Mitchell, Mark Siegler, and Peter Williams. Application has been submitted for AMA Continuing Medical Education Credit for physicians. For further information please contact: Professor George Agich, Department of Medical Humanities, Southern Illinois University School of Medicine, P.O. Box 3926, Springfield, Illinois 62708; Professor H. Tristram Englelhardt, Jr., Kennedy Institute of Ethics, Georgetown University, Washington, D.C. 20057: or, Professor Stuart F. Spicker, Department of Community Medicine and Health Care, University of Connecticut Health Center, Farmington, Connecticut 06032.

Fort Crawford Medical Museum

The Fort Crawford Medical Museum located at Prairie du Chien, Wisconsin, which is owned by the Charitable, Educational and Scientific Foundation of the State Medical Society of Wisconsin and operated by its Aesculapian Society, has a number of displays relating to nineteenth-century medicine in Wisconsin, including displays of Indian herbal remedies, a drug store, and dentists' and physicians' offices. It is dedicated to Dr. William Beaumont who performed his famous experiments at Fort Crawford in the 1830s.

Houston Academy of Medicine—Texas Medical Center Library

"Conversations with the Past" a series of lectures in the health sciences, originally presented in April and May, 1980, are now available on videotapes. Lectures available are the following: "Pioneering Spirit in American Medicine," Virginia Allen; "Paul Revere, Doc Holliday, and Texas Dental History," Ernest Beerstecher; "Texas Medical Center: A Dream to Share," William Seybold; "Sir William Osler: On the Student, Teacher, Libraries and Medicine," John P. McGovern; "History of Malaria," Richard Conklin. For loan information contact the Audiovisual Department, HAM-TMC Library, Jesse H. Jones Library Building, Houston, Texas 77030.

Logan Clendening Traveling Fellowship in the History of Medicine

Applications are being invited for the Fellowship which is tenable for three months during 1981. Established in memory of the late Dr. Logan Clendening, the Fellowship is of the value of $1,000 and is open to registered medical students of any recognized medical or osteopathic school in the U.S. or Canada. Applicants may elect to travel anywhere in the world to study any aspect of medical history. Application forms, which must be completed and returned by April 15, 1981, can be obtained from Robert P. Hudson, M.D., Chairman, Department of the History of Medicine, University of Kansas Medical Center, Kansas City, Kansas 66103.

Mayo Clinic

The History of Medicine Section of the Mayo Clinic, Rochester, Minnesota sponsored a lecture series in Fall, 1980. Speakers included Ruth Mann, "John Bell and His Surgery"; W. Bruce Fye, "Active Euthanasia: An Historical Survey of its Conceptual Origins and Introduction into Medical Thought"; Jack Key, "The Osler Medical Historical Society Mayo Foundation 'chapter,' August 28, 1920-July 3, 1925"; Hymie Gordon, "Religion, Art, and Medicine."

New York Botanical Garden

An illustrated one-day lecture program entitled "Health's Garden: Medieval and Renaissance Medical Botany: Implications for the Physician of Today" was held September 15 at the New York Botanical Garden. The program was co-sponsored by the Institute for Medieval and Renaissance Studies, City College of the City University of New York and was co-ordinated by Dr. Madeleine Pelver Cosman, a medical historian and Director of the Institute.

University of Missouri, St. Louis

The Joint Collection, Western Historical Manuscript Collection and State Historical Society of Missouri Manuscripts has been named the official repository for the papers of Dr. Thomas A. Dooley (1927-1961). The papers will be housed at WHMC-St. Louis, which currently holds 78 tape recordings of radio broadcasts made in Southeast Asia by Dr. Dooley from 1956-1960. The tapes were given by the Columbia Broadcasting System through its St. Louis affiliate, KMOX Radio. Dr. Dooley, born and educated in St. Louis, is best remembered as a medical missionary in Southeast Asia and founder of MEDICO (Medical International Cooperation Organization) which provided private medical assistance in Vietnam, Laos, and Cambodia.

Vesalius Translation

Dr. L. R. Lind of the Classics Department, University of Kansas, Lawrence, Kansas 66045 is engaged upon a translation of Vesalius, *De humani corporis fabrica* (1543). He hopes to complete his project in two years.

Women in the Health Professions

A conference on this topic sponsored by Boston College was held on November 15, 1980. Professor Janet W. James, History Department of Boston College was the organizer. Speakers included Nancy S. Dye, "Nursing and Midwifery as Frontier Medicine in Kentucky"; Eleanor Herrmann, "Yellow Fever and the Origins of Nursing Education in British Honduras"; Susan Armeny, "National Crisis as Professional Threat and Opportunity: The Responses of Nurses and Women Physicians to World War I"; Nancy Tomes, "A Collision of Nursing's Two Worlds: Volunteer vs. Professional Nursing in World War I"; Martha Verbrugge, "The Ladies' Physiological Institute of Boston and Vicinity: Self-Improvement and Social Activism in the Late 19th Century"; Virginia Drachman, "The Widening Path: Professional Activity and Practice Among Women Doctors in the Late 19th Century."

PROGRAMS OF MEETINGS

Josiah C. Trent Society for the History of Medicine, Durham, North Carolina

October 9, 1980: " 'Who is Sylvius?'—The Origins of Clinical Teaching," Francis A. Neelon.

Leaders in American Medicine—Francis A. Countway Library of Medicine, Boston, Mass.

October 8, 1980: Derek Denny-Brown, M.D., Videotape interview by Joseph Foley, Discussants: Derek Denny-Brown, Joseph M. Foley, William B. Castle.

November 12, 1980: Arthur T. Hertig, M.D., Videotape interview by Stanley Robbins, Discussants: Arthur T. Hertig, Stanley Robbins, Guido Majno, Morris Karnovsky.

February 11, 1981: Dwight E. Harken, M.D., Videotape: "Pioneers in Pacing" (an interview by Dr. Harken with Earl Bakken abd Barouh Berkovits), Discussants: Dwight Emory Harken, Francis D. Moore, Lawrence B. Ellis, Lewis Dexter.

March 11, 1981: Albert Sabin, M.D., Videotape: "Albert Sabin: The Making of a Scientist" (Dr. Sabin was interviewed by Dr. Benjamin Felson), Discussants: Albert Bruce Sabin, Saul Benison, Thomas H. Weller.

Wednesday, April 8, 1981: Grete Bibring, M.D. (1899-1977), Videotape, "Conversations with Grete Bibring" (Dr. Bibring was interviewed by Dr. Oliver Cope), Discussants: M. Robert Coles, Oliver Cope.

The Marshfield Medical History Club, Marshfield, Wisc.

February 21, 1979: "The Founders of the Marshfield Clinic," G. Stanley Custer.

June 4, 1979: "The Founders of the Marshfield Clinic—Part 2," G. Stanley Custer.

September 24, 1979: "Important Books Illustrating The History of Medicine," W. Bruce Fye.

December 3, 1979: "An Historical Survey of the Introduction of the Concept of Active Euthanasia into American Thought," W. Bruce Fye.

February 4, 1980: "The Marshfield Clinic in the Roaring '20s," G. Stanley Custer.

April 17, 1980: "Music in Medicine," Jack Kirchner.

May 20, 1980: "William Withering and the Discovery of Digitalis" (film).

Mayo Foundation History of Medicine Society, Rochester, Minn.

July 2, 1980: "Oliver Wendell Holmes as a Medical Teacher," George G. Logan; "Forensic Foxglove Fields: Criminal Aspects of Digitalis Use in Fiction and Fact," Howard B. Burchell.

October 1, 1980: "Administration at Mayo—Then and Now," Robert C. Roesler; "Dominic John Corrigan, 1802-1880," Daniel C. Connolly.

Society of Medical History of Chicago

October 7, 1980: "Arthur Conan Doyle: Doctor Detective," Frederick Kittle.

Washington Society for the History of Medicine, Bethesda, Md.

September 25, 1980: "On Mould Poisoning and the Modern Rise of Population," Mary Matossian; "Canadian Aspects of the War of 1812," Charles G. Roland.

NEWS FROM ABROAD

Canada

Malcolm G. Taylor, professor in the Faculty of Administrative Studies, York University, has been awarded the Jason A. Hannah Medal for 1980 by the Royal Society of Canada for his contribution to the history of Canadian medicine, *Health Insurance and Canadian Public Policy: The Seven Decisions that Created the Canadian Health Insurance System* (McGill-Queen's University Press, 1978). In this volume Dr. Taylor traces the growth of the Canadian health insurance system over a period of half a century.

Malta

On 25 June 1980 the inauguration of the restored Old Laboratory of the Public Health Department was held in Valletta, Malta. The occasion marked the seventy-fifth anniversary of Sir Themistocles Zammit's discovery of the germ of undulant fever in the blood of the goat. The restoration of "Zammit's Laboratory" was due to the efforts of Dr. Paul Cassar.

University of Ottawa

The Program in the History of Medicine is receiving two visiting scholars during the academic year 1980-81. Toby Appel, Ph.D., research associate, Smithsonian Institution, Washington, D.C., will be in residence for the entire academic year and Suzann Buckley, Ph.D., State University of New York, Plattsburgh, will be at the University from January to June 1981. Dr. Appel's research deals with the history of life sciences in nineteenth-century France, specifically focussing on the work and thought of Geoffroy Saint-Hilaire, on whom she is preparing a monograph. Dr. Buckley is studying the history of maternal and infant mortality in twentieth-century Canada as part of an on-going project concerning women and medicine, a subject on which she has published several articles. Both scholars will be contributing to the activities of the Program in the History of Medicine, including seminars and public lectures. For further information, contact Toby Gelfand, Hannah Professor of the History of Medicine, Faculty of Health Sciences, University of Ottawa, Canada, K1N 9A9.

BOOK REVIEWS

DEUCE-ACE BOOK REVIEWING: A THIRD OPINION

In the Spring issue of the Bulletin *appeared an essay review by Howard Berliner of New York University of three books—a reader edited by Judith W. Leavitt and Ronald L. Numbers, a second one edited by Susan Reverby and David Rosner, and a book entitled* Rockefeller Medicine Men: Medicine and Capitalism in America *by E. Richard Brown. In fundamental disagreement with this Berliner panegyric, the editor wrote a "second opinion," which produced a tremor in California, whence came a sharp response, printed below. Dr. Brown has accused the editor of levity and of having "substantially misrepresented" his book. Now principal among the main points of the second review was this concession—that the theme of medicine and capitalism in America "deserves more serious consideration than either the review or the second opinion [or for that matter Brown] has given it." How best to secure for it this more serious consideration should obviously be the first of the* Bulletin's *cares, and consequently the second reviewer has sadly resolved to withdraw in favor of a third. He has turned to another of the princes of darkness, one known to have delved deeply in the sulfurous lower circles of Rockefeller and Carnegie, among the archival sources used by Brown, and the third opinion brings to a close this instructive and sometimes diverting episode. A grave and learned reviewer has the last word, free of that "polemical hyperbole" which has roused complaint. As once was said of Beëlzebub,*

Deep on his front engraven
Deliberation sat and public care.

His dictum follows the Brown response.

RESPONSE TO LLOYD STEVENSON'S "SECOND OPINION," *BULLETIN OF THE HISTORY OF MEDICINE*, Spring 1980

It is difficult to know whether to take seriously Lloyd Stevenson's fierce pen with which he has smitten social history of medicine. Stevenson's "second opinion" is a rather surprising diatribe that found virtually nothing praiseworthy in his fleet-footed sweep through three books reviewed with considerable favor by Howard Berliner. As the author of one of the books, *Rockefeller Medicine Men: Medicine and Capitalism in America* (University of California Press, 1979), I would like to point out to Dr. Stevenson and the *Bulletin*'s readers that he has substantially misrepresented my book.

Dr. Stevenson claims that I portrayed the development of medical science as the result "chiefly, of a sort of capitalist plot." Actually, I very explicitly rejected any such conspiracy theory of history. Rather, I argued that leaders in the medical

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profession viewed scientific medicine, not only as more effective technique, but also as a vehicle to increase professional control, status and incomes—objectives they had unsuccessfully pursued in other ways throughout the nineteenth century. I further argued that the profession was successful in pursuing its interest because the development of scientific medicine coincided with the rise of the belief in science and technology associated with America's rapid industrialization in the decades following the Civil War. Furthermore, I pointed out that the money needed to pay for medical research and for the reform of medical education along the lines "required" by medical science came, not from the profession, but from the richest class in America, whose wealth derived from industrial development. The many actors in these developments were guided mainly by their common perceptions of their group interests—a process in which dark conspiracies among a few actors played an insignificant role.

Relying on internal correspondence and memos culled from the Rockefeller and Carnegie foundation archives, I analyzed *why* the officers of these philanthropies decided to support medical research and medical education reform. I showed that Frederick T. Gates, Rockefeller's chief lieutenant for his financial empire and the architect of all the early Rockefeller medical philanthropies, believed that society's needs, as *he* defined them, would be served best by this support. Although the interests of the medical profession and these corporate class philanthropies coincided in the support for medical science, they sharply diverged over the strategies to be taken in medical education reform. Specifically, the Rockefeller officers initiated the full-time plan for clinical faculty because they believed that it would help curb the ability of the private practice medical profession to advance its own narrow interests over those of the society.

Using the written record from professional sources and from foundation officers, I tried to answer the question: Whose interests were the Rockefeller medical philanthropies intended to serve—those of the entire society, the profession, the corporate class, or the Rockefellers? I rejected the notion that these programs were substantially intended to serve the Rockefellers' personal interests, but I found that Gates and the Rockefellers defined society's interests as equivalent to the interests of the corporate class. I demonstrated that the highest officers of corporate class philanthropies saw themselves and their programs as shaping medicine to serve the needs of "their" society and that they supported the efforts of the medical profession so long as the profession's interests coincided with their own class interests. The momentous conflict between the profession and the Rockefeller philanthropies over the full-time plan occurred because the foundation officers believed that the profession was pursuing too narrow a set of interests and thus was conflicting with the needs of the larger capitalist society. It is not surprising that Gates and the Rockefellers acted like capitalists in medicine as they did in their financial interests. What was striking, as documented in my book, was (a) the clarity with which they—and especially Gates—understood and wrote about their class concerns and (b) how they shaped those interests into programs that heavily and effectively influenced the development of medicine.

Dr. Stevenson may disagree with my interpretation of the historical evidence I presented, but it behooves him to make his criticisms specific and offer an alternative interpretation (instead of merely bemoaning the fact that the passing of

John Knowles deprives us of a critical response). I think the *Bulletin* and the history of medicine would be better served by a reasoned discussion of social histories, such as the three books reviewed by Dr. Berliner, than by polemical hyperbole.

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ROCKEFELLER MEDICINE MEN AGAIN: IDEOLOGY VS. METHODOLOGY

DANIEL M. FOX

An Essay Review

Richard Brown argues in *Rockefeller Medicine Men* that "members of the corporate class, acting mainly through philanthropic foundations, articulated a strategy for developing a medical system to meet the needs of capitalist society" (p. 4). Much of what he writes is persuasive. However, his ideology often leads to methodological lapses.

Dr. Brown frequently reads sources in unusual ways, as other reviewers have noted. Ronald Numbers, reviewing *Rockefeller Medicine Men* in the *American Historical Review* (June, 1980, pp. 727-728) said that, "Brown's account of medical developments in the nineteenth and twentieth centuries abounds with errors great and small. The imprecision of his analysis renders it virtually meaningless." Andrew Hacker, a political scientist, writing in *The New York Times Book Review* (September 2, 1979, p. 4) disputed Brown's evidence that the medical system "serves the needs of corporate capitalism."

Brown makes many ungrounded assertions. University faculty in the basic sciences are accused with no proof of having "offered their services to the capitalists in return for new laboratories and stipends" (p. 28). Specialization in medicine is described oversimply as "largely a response to competition within medicine" (p. 80). Contradicting the sources, he asserts that women were "excluded from being doctors" in the early twentieth century (p. 96). His belief that "Harvard was able to resist the full-time plan because of its reputation as a leading scientific medical school" and the prominence of its faculty in "Boston's ruling social circles" (p. 167), ignores the evidence that the strict full-time system for clinical faculty could not be sustained anywhere during the past six decades. He argues without documentation that the Committee on the Costs of Medical Care in the 1930s and the Hill-Burton Act of 1945 were similar efforts of the corporate interests to rationalize and control medical care (p. 199).

Brown is most convincing when he uses the techniques of the history of ideas and political theory. His essay on the work and values of Frederick W. Gates, John D. Rockefeller, Sr.'s principal philanthropic adviser is carefully grounded in primary sources. Gates frequently articulated his philosophy and made sure that his papers were aggregated rather than dispersed through the Foundation's administrative records. Unlike most of his colleagues in the Foundation, Gates was impatient with the indirectness and understatement of bureaucratic discourse. The sources on Gates, unlike those generated by Abraham Flexner or Wallace Buttrick or by such skillful academic politicians as Charles W. Eliot and William H. Welch, are explicit ideological documents.

Like Raymond Fosdick, the official historian of the Rockefeller Foundation, Brown rejects the complexity of interests, motives and events revealed by sources for the political and administrative history of the Foundation. Moreover, Brown, like Fosdick, rejects this complexity because he believes that internal disagreements were minor events in the elaboration of a consensus about what ought to be done to create a decent and healthy society. Fosdick believed that the Rockefeller Medicine Men acted from free will to benefit society. Brown believes their actions were determined by class interests and contributed to the exploitation of most Americans. Brown inverts Fosdick.

Because Brown is impatient with the use of administrative paper and meetings to assert values and personality and to struggle for power in complicated organizations, he does not respect the integrity of the sources he examines. He occasionally quotes correspondence written several years apart about different subjects as if the sources were sequential. On page 173, for example, discussing an incident in 1919, he quotes a comment on a related subject that a principal actor made in 1925 as if it was part of the debate in 1919. The circumstances and the issues were, however, quite different in 1919 and 1925. Brown's citations (p. 261) tell the truth. The problem is not that Brown is dishonest but that his disdain for telling the story accurately causes unacceptable distortions of fact.

Although Brown does not inspire confidence by the way he does archival research, his interpretation should not be discarded. Medicine and the mode of production, physicians and the dominant class in any society at any time, are closely linked. The connections between the development of modern medical institutions and of the modern economy are close and important for the history of medicine. Dr. Brown's study is a contribution to understanding these connections.

Considerably more research must be done to test his generalizations. People rarely behave as their ideologies appear to predict. For example, Brown would have difficulty explaining Henry Sigerist's journal entry for January 10, 1938: "It is pretty liberal, after all, that the [Rockefeller] Foundation supports me in spite of my radical attitude. I do not hesitate to accept the money."[1]

Rockefeller, Carnegie and their employees were unrepresentative of the "corporate class" of their time, just as Welch and Osler were not typical of the analogous abstraction, "physicians." Such scholars as Robert Bremner, Merle Curti and Joseph Wall contend that the Rockefeller and Carnegie foundations were unusual, not typical, American philanthropies of the period. Moreover, some scholars argue that the extensive Rockefeller Foundation investments in medical education were public relations to counter widespread public criticism of John D. Rockefeller, Sr. for economic crimes. Ivy Lee may have been more influential than Frederick Gates. The United States Industrial Commission did not believe it was acting either for the ruling class or on behalf of the workers when it first humiliated and then condemned the Rockefellers in the same years that the Foundation decided to invest heavily in medical education.

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[1] Nora Sigerist Beeson, *Henry E. Sigerist Autobiographical Writings* (Montreal: McGill University Press, 1966), p. 130. Sigerist continued. "It is nothing but social justice that this money should serve the ends for which I am fighting."

Dr. Brown correctly claims in his rejoinder to Dr. Stevenson's review that he "explicitly rejected" a "conspiracy theory of history." An author need not repeat a disclaimer every time he or she interprets a set of sources. But an author should not interpret sources in ways that seem to contradict such a disclaimer. It is hard to credit Brown's absolute rejection of conspiracy theory when he writes that the "full-time plan was an entering wedge, the first thrust of a continuing struggle by corporate philanthropy to control medical education and medical care. . . . " (p. 175).

Rockefeller Medicine Men concludes with an extended polemic about contemporary medical care. Brown believes that such problems as unequal access to services, the lack of personal caring by physicians and official inattention to occupational hazards are inevitable results of the investments made by foundations and the State in the interests of the corporate class. Many physicians and some historians of medicine will be pleased to discover that Brown accords the medical profession a minor role in the creation of these inequities.

Brown asserts that medical care should not be regarded as a "commodity." This assertion unites the Right and the Left in comtemporary debates about proper financing for medical care. Both groups believe that medical care cannot be discussed as a problem in the allocation of scarce resources as a result of personal and public choice. Both sentimentalize solo practice, by assertion or implication.

Brown does more than invert Raymond Fosdick. On the issue of the social role of medicine he inverts the late Dr. Morris Fishbein. He seems to prefer professional dominance of medical care to what he believes to have been perpetrated by the agents of the capitalist class. What Fishbein called socialized medicine, Brown transposes into an equally objectionable capitalist medical system. But Brown stops short of espousing the AMA political position of the years 1920-65. When the AMA revolted against the capitalists it was merely a "civil war" (p. 197).

I make these judgments as an historian, not as an activist. As an historian, I note that both Brown and many medical conservatives argue that there should be no limits on what a society spends for its medical care. As an activist, I would ask how a society should choose among its competing priorities. As an historian, I note that Brown and other contemporary Marxists, like their bitter enemies in organized medicine, appear to be comfortable with an increasing investment of resources in an expanding health arena. As an activist, I assert my discomfort with the vision of a society more medicalized than it is at present. Brown is entitled to his polemical views, as well as to the ideology that guides his scholarship. Janus, after all, had two faces. But historians of medicine need to be judged by rigorous standards, both in their scholarship and in its applications.

ROBERT S. GOTTFRIED. *Epidemic Disease in Fifteenth Century England: The Medical Response and the Demographic Consequences*. New Brunswick, N.J.: Rutgers University Press, 1978. xiv + 262 pp. $17.00.

The effect of plague on the medieval and early modern population and society of the British Isles has attracted perhaps more concentrated attention than the impact of that disease on any other part of Europe, with the possible exception of Italy. This is not because the plague was more dramatically devastating in Britain than in other parts of Europe, nor because the detailed records of its impact are better, but rather because the English central records are relatively good and easily accessible. Such accessibility encourages historians to write general accounts that depend upon "packaged" and superficially plausible interpretations of the etiology of the disease, that repeat many items of plague folklore left over from the proto-scientific era of loimology, and that rely not at all on the demographic realities as revealed and revealable in the local records. The preferrable alternative to such works is the sort of painstaking study that Dr. Gottfried has made in the excellent book under review.

In his work, the author has three purposes in mind: one general and analytic, and two particular and polemical. The general purpose is to build a quantitative and objective framework for the demographic history of East Anglia between 1430 and 1480, and, in particular, to show that "one crucial socio-economic factor in fifteenth-century England was the biological-environmental element of epidemic disease, and that one disease, plague, was of particular importance." The two polemical purposes are related to the general one. Gottfried is concerned to establish the biological-environmental (epidemic disease) mode of population control as the principal cause of population restriction in medieval and early modern times, as opposed to the "Malthusian" (economic privation brought on by overpopulation) model. The first model was favoured notably by Gustav Utterström about 1954, generally by J. D. Chambers, and particularly by John Saltmarsh. It depends upon a belief in the frequency of plague outbreaks in late medieval and early modern times. The second model is supported by most social scientists and particularly by M. M. Postan and J. M. W. Bean. Dr. Gottfried's second polemical purpose arises out of the first: to refute the views of Dr. J. F. D. Shrewsbury (*A History of Bubonic Plague in the British Isles* [1971]) that plague outbreaks were infrequent in late medieval England, that they rose in each case from microorganisms imported into England from abroad and that the incidence of plague, after the first great outbreaks, was increasingly confined to cities.

The center-piece of the study and the most useful part of it is an analysis of about 20,000 registered wills, loose probates, letters of administration and items on intestacy lists in the Prerogative Court of Canterbury, the Consistory Court of the Bishop of Norwich, the courts of the Archdeaconries of Norfolk, Norwich, Suffolk, Sudbury and St. Albans, and the peculiar courts of Bury St. Edmunds, King's Lynn, Great Yarmouth, Castle Rising, Great Cressingham and the City of Norwich. These items represent the testamentary data of most of the reasonably well-off female and poorest male and female populations of East Anglia between 1430 and 1480. Chapters on the demographic composition of the will-registering population and, in part, those on the patterns of mortality and the course of population between 1430 and 1480 are victories of simple, computer-based analysis over the dearth and apparently unpromising nature of sources. They provide not only sound, reliable raw material for this and other studies, but simple, clear methodology which should be at least as useful to researchers in other, later, eras and other societies, as it has been to Dr. Gottfried in his. It is a triumph of painstaking accumulation and ingenious manipulation of data.

His interpretations of the larger epidemiological and demographic significance of his findings cannot command such wholehearted agreement and approval. First, let it be said that some of Dr. Gottfried's questionable propositions arise from his salutary efforts to correct some of the more egregious ideas current among some historians concerning the etiology of plague: that plague outbreaks were infrequent in the later middle ages, that plague was increasingly confined to urban areas, that plague in medieval and early modern times was largely transmitted between humans by *P. irritans*, and that there is no evidence that medieval observers connected plague with rodent deaths. Dr. Gottfried vigorously and effectively disposes of these propositions. But in his anxiety to identify the cause of the major crisis mortality, as recorded in his testamentary data, with plague, he rigidly confines the peak incidences of bubonic plague to early autumn, though in fact the peaks of epidemics vary from July to October in temperate climes, depending on the population dynamics of the zootic hosts; and though the excess of mortality in the fall quarters over that in winter and spring quarters, as recorded in his data, is rarely more than 2-3%. He is also determined to attribute much of the mortality in winter to pneumonic plague. Both these preoccupations are related to his sedulously ignoring the incidence of other diseases which appear to have been effective killers in the autumn, winter and spring quarters.

A second important shortcoming is Dr. Gottfried's apparent inability to distinguish between "endemic" and "enzootic." At first sight it appears that he does indeed intend to talk about "endemic" plague (i.e. a subclinical infection in humans which provides a reservoir for future epidemic outbreaks), since he cites with apparent approval the identification by F. G. Clemow in 1903 of such a sub-clinical infection. (This identification has not been supported by the observations of subsequent loimologists.) But in fact, Dr. Gottfried is describing enzootic (called by Hirst "sylvatic") plague (i.e. a sub-clinical infection in wild rodent populations which does indeed provide a reservoir for the disease). The confusion is of more than semantic significance, since Dr. Gottfried is later led into attributing high mortality in inter-epidemic years to human outbreaks deriving from an enzootic presence of plague. Generally human plague derived directly from enzootic plague, without the intervention of the mass distribution agency of a rodent epizootic, is sporadic—a few cases annually in the neighbourhood of an enzootic plague focus. Was high mortality in inter-epidemic years really due primarily to plague rather than to other diseases?

This leads to consideration of a further confusion in which he endeavours to establish two distinct types of epidemic outbreak: one that spreads following the main lines of communication, and another that appears "spontaneously" [sic] in many different areas almost simultaneously and without apparent pattern. In fact, he is describing two different aspects of various plague epidemics. The latter, widespread and apparently simultaneous, outbreak is almost certainly the result of an epizootic among the rodent host population, either spreading directly to the rural human population or indirectly through the commensal rodent population to humans. The incidence of plague along lines of communication has less to do with the movement of plague hosts and micro-organisms by human agency than it has with the fact that it is along these lines of communication between centers of human population that the greatest density of potential plague hosts, zootic and human, is to be found.

Dr. Gottfried's inability to account adequately for the simultaneous increase of population and serious incidence of epidemic plague in 1479-80 and in the late sixteenth and early seventeenth centuries seriously limits the validity of his biological-environmental thesis. With great honesty he wrestles with the problem but does not arrive at a satisfactory explanation. May not the explanation lie in the population dynamics of *all* the host populations of plague?

In the end, however, he does achieve most of his principal purposes: he *has*, in his remarkable analysis of testamentary data, provided an extremely good framework for the demographic history of East Anglia in the fifteenth century; and he *has* largely corrected the idiosyncratic ideas of his forerunners. He is to be congratulated on a very fine book which will influence medieval and early modern demographic history very much for the better.

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FRANCIS MADDISON, MARGARET PELLING and CHARLES WEBSTER, (Editors). *Linacre Studies: Essays on the Life and Work of Thomas Linacre, c. 1460-1524*. Oxford: Clarendon Press, 1977. liii + 416 pp. Ill. $26.50.

Linacre stands like a god at the fountain-head of English medicine; his virtues, it has been said, "have acquired a mythological stature"; yet little authentic has been known about him. Charles Schmitt in his essay on Linacre's Italian years in this magisterial volume asserts that "the most unreliable writing is one of the most relied on": J. F. Payne's *Dictionary of National Biography* memoir (1893).

These twelve *Essays* are intended, the Principal of the young Linacre College at Oxford writes in his prefatory note, as the first in a series of *Linacre Studies* sponsored by the College. The volume is more like a special issue of a learned journal than a collaborative "Life and Times," the essays being independent "critical studies of dominant themes related to Linacre's place in humanist studies and Renaissance medicine, and to his historical influence." The three editors, two of whom contribute essays, have gathered a team of scholars from various universities and disciplines, classics, art-history, bibliography, history of universities, besides the history of medicine, and have "rarely attempted to reconcile differences in the authors' conclusions." The volume is a work of profound and detailed scholarship, a permanent memorial deserving slow and careful study.

Four essays describe Linacre's formative years at Oxford and in Italy, four describe the origin and fortunes of his medical foundations in England, three survey respectively his own writings, references to him, and the supposed portraits, while the final essay discusses the Renaissance background of his activity.

The editors' Introduction with its elaborate notes is really an extra essay, providing a "Character" rather than a biography, drawn from thorough study of "scanty biographical material and rich sources for the intellectual history of his time." The strength of the whole collection is in its wealth of reference to Linacre's *milieu*, its account of his friendships in Italy and England.

Some criticism of the book's arrangement, however, must be voiced. It comprises three concurrent parts: essays, apparatus of references, and "pièces justificatives." In spite of the Oxford printers' skill the alternation of ordinary and small type makes ugly pages, especially where, in Sheridan's words, "a neat rivulet of text" trickles over a deep sediment of notes. Footnote references to "sources" are often necessary, but for three of these essays they have grown into elaborate excursuses: the "Notes to the Editors' Introduction" come after the text but are three times as long, while those to Cecil Clough's essay on Linacre's humanistic studies at Oxford and Charles Schmitt's "Thomas Linacre and Italy" are printed below the text; John Fletcher's "Linacre's Lands and Lectureships" is followed by fifty pages of documents. A good case could have been made for putting all these subsidiaries in a separate volume, for the present book is too heavy to hold with comfort, weighing nearly a kilogram. As to accumulation of references, six for instance to Browning's *Grammarian's Funeral* which satirised Linacre's pedantry and eight to Linacre's stay at the English Hospice in Rome, this is the rock on which the printing of long indexes foundered more than twenty years ago. A reader accepts a historian's synthesis of research and does not expect to re-examine the sources; the references ought, in our time, to be in a computerised "data-bank" or filed in a library, as Margaret Pelling records that she has deposited in the Library at Linacre College the cards on which she based her list of "Published References to Thomas Linacre" (pp. 338-353). The printing of lists at this length is now uneconomic; editors would do well to recall T. S. Eliot's remark in his *Dante* (1929) "Anyone can easily discover more Dante bibliography than anyone can use." The acme of extravagance is the reproduction of twenty-two portraits, none of which "has an unshakeable claim to reflect the features of Linacre." True bibliography, the description of books, is admirably displayed in Giles Barber's "Bibliographical Survey" of Linacre's works, which discusses the printing history, variants, dedications, bindings, etc. of copies of his "personal publications," provides a "checklist" of subsequent editions, and describes twenty books from Linacre's library.

I have found most interesting the forty-page essays by Charles Schmitt on "Thomas Linacre and Italy" and by John Fletcher on "Linacre's Lands and Lectureships." Schmitt gives a beautifully clear account of Linacre's twelve years in Italy, 1487-99, with biographical detail of his contacts at Florence, Rome, Padua and Venice drawn mainly from Italian sources, and a concluding section on his activity after his return to London and his humanist friends there. It is particularly valuable for its identification of the men from whom Linacre learned Greek, the books he studied, and the methods of education he assimilated. Fletcher deals with the efforts of Linacre and his London friends to "infiltrate the new learning" into the traditional curriculum, theological and legal, at Oxford and Cambridge. He has found, overlooked in the papers at Merton College, the Will drawn up within a year of Linacre's death disposing of the real estate he had been buying to endow his medical lectures on Galen's texts.

Richard Durling contributes an outstanding essay on "Linacre and Medical Humanism" based on a profound knowledge of the books and authors of the period. He corroborates D. F. S. Thomson who, in his precise examination of Linacre's Latin grammars, points to his "rare familiarity with Greek" and excessive zeal for completeness; Linacre's friend Colet rejected his grammar as too advanced for his schoolboys at St. Paul's. Durling plays down the claim that Linacre's translations of Galen improved on earlier "barbarous" versions, giving parallel quotations and a skilful sampling of Linacre's Latin vocabulary.

Charles Webster in his account of the foundation of the College of Physicians in London offers two new background studies of great value: first, he surveys medical teaching in the continental universities and the emergence of medical guilds in Italian cities, with emphasis on their formal statutes; secondly, he discusses the close connection between London's physicians and merchants. He concludes that the College did more good to the profession than to the health of the citizens. Cecil Clough devotes much of his exploration of "Linacre's studies at Oxford" to showing that he was first taught Greek there by Cornelio Vitelli, adducing detailed but circumstantial evidence, and saying little about Latin humanism or medical study.

R. G. Lewis on the Linacre Lectures at Oxford and Cambridge till their decline in the eighteenth century and Margaret Pelling on their revival and transformation provide useful and interesting histories, thoroughly researched and valuable for their evidence of changing attitudes to medical education and their biographical directories of the individual lecturers. Maureen Hill's discussion and catalogue of the attributed portraits is a masterly piece of art-historical criticism. The numerous copies of a Flemish portrait of about 1530 in the Queen's collection have been mentioned: "its identification as Thomas Linacre cannot be accepted today." The reproductions may prove useful warnings; one copy made in 1810 was by 1900 considered an "old master." There are two seventeenth-century images which perhaps derive from an independent original. While there is no authentic graphic portrait we have a vivid verbal one, published in 1548, of Linacre "striding among the nobles of the Royal Court, wearing a crimson gown to his ankles and a full cloak of black velvet thrown across his shoulders."

Walter Pagel's philosophic evaluation of the main currents of the new learning in Renaissance medicine, the work of Paracelsus, Vesalius, Eustachius and the botanists particularly Fuchs, brilliantly enlightens the ambience of Linacre's thought and work in "medical humanism," showing the unanimous plea for critical study and interpretation of Galen.

Many of the writers say that much remains to be discovered about Linacre, his medical practice, for instance, or his reason for taking Holy Orders; but his character comes out well and is perhaps best summarised by Giles Barber who writes, "the impression left by Linacre's personal publishing history is not that of the old grammarian"—("Gave us the doctrine of the enclitic *de*/Dead from the waist down")—"but of a practical, exact and human scholar." This is borne out in the five central essays, which show him in touch to the end of his life with men of like mind, actively guiding his new College in London and eagerly drafting final instructions for the reform of medical education at both universities.

Reviewed by WILLIAM LEFANU, M.A., Librarian (1930-68), Royal College of Surgeons of England, London.

BRIAN WATKIN. *The National Health Service: The First Phase, 1948-1974 and After*. London: George Allen & Unwin, 1978. 170 pp. $18.75 (cloth); $8.75 (paper).

DAVID WIDGERY. *Health in Danger: The Crisis in the National Health Service*. Hamden, Connecticut: Archon Books, 1979, xix + 178 pp. $17.50.

The British National Health Service prompts a never-ending stream of comment; the recent thirtieth anniversary has swollen this stream into a torrent. Routinely the commentators construct their work historically, but this aspect tends to be subservient to whatever apologetic purpose the survey is designed to serve. The two small books reviewed here follow the traditional pattern—a few pages of longer-term perspective, a selective review of the state of health care before 1946, a headlong rush through the national health service organized to demonstrate the validity of some particular critique of the current service. Although the two authors write from diametrically opposed political standpoints, they are united in their dissatisfaction with the national health service. They swell the chorus of Jeremiahs sounding the dominant note in the thirtieth anniversary celebrations, which thus come to assume an air of apocalyptic doom.

The study by Watkin is the more conventional of the two. It is written from the point of view of social administration, and the bulk of the volume comprises an uninspired précis of the work of an endless parade of committees which have guided ministers on health service policy. This uncontroversial substance is embedded in a conspicuously apologetic framework. The general tenor of the analysis is established near the outset by reference to J. and S. Jewkes, *The Genesis of the British National Health Service* (1961), an influential little pamphlet in conservative circles and one which provides Watkin with the main ingredients for his historical setting.

The main intention of the opening section is to stress the positive achievements of the health services before the National Health Service; the complex network of insurance and voluntary agencies, despite the problems of the depression, are seen to have built effectively on the work of the Victorian sanitary reformers who were supposed to have "triumphed against cholera and other water borne diseases" (p. 7). The Labour government is judged to have interrupted the smooth development of the services along lines intended by the profession, in order to impose doctrinaire plans in line with its policies of nationalization. The scene was thus set for the emergence of an extravagant and heavily bureaucratized mechanism which gave negligible returns in the improvement of health care. Although Watkin predictably concludes in the vein of the Jewkeses by arguing that the National Health Service has failed in all essential aspects, he stops short of recommending its dismemberment, or reversion to health care arrangements consistent with present day conservative thinking.

Widgery is a general practitioner in East London; he approaches health care from the standpoint of the radical left. His approach is personal, impressionistic, and he makes no effort to provide a structured review of the modern health services. Most of the committees and reports chronicled by Watkin are scarcely mentioned. Widgery is more concerned with the outcome of decision-making. Typically Watkin's genteel appraisal of the notorious Resource Allocation Working Party, is matched by Widgery's blunt epithet: "classic social democratic cock-up."

Watkin and Widgery differ so much in their account of pre-1946 health services that the reader would doubt that they were describing the same nation. Victorian England for Widgery is characterized by social deprivation and repressive forms of sick treatment; the National Health Insurance system before 1946 is noted for its deficiencies rather than comprehensiveness—he is wrong in asserting that no dental or optical services were provided under NHI (p. 18). Equally Watkin is at fault by not admitting that the dental (more correctly "denture") service under NHI was not the equivalent of the NHS comprehensive dental service. This point is indicative of a systematic failing in the two writers. Widgery matches Watkin's statistics of improving health with equally convincing statistics concerning the continuing ill-health and excessive rates of mortality among large sections of the community. The national health service planning efforts of the medical profession, war-time coalition (and the Socialist Medical Association and Labour Party!) are ignored by Widgery. The National Health Service is presented as a brilliant "stroke" by its "architect" Aneurin Bevan. The review of the health services in this volume is framed as a defence against the cuts imposed by recent Labour and Conservative Governments. Widgery's book ends with a succession of ill-organized debating points rather than conclusions relating to the health services as a whole.

Widgery and Watkin are primarily political contributions to the debate on the health services in Britain. By virtue of greater conviction and authenticity with regard to the problems of medicine in inner city areas, Widgery has produced the more interesting historical document which deserves to be widely read. For more serious historical appraisal, albeit without pretence to perfect objectivity, we continue to rely on American sources, ranging from Lindsay and Eckstein to the recent study by Honigsbaum.

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HARRY F. DOWLING. *Fighting Infection: Conquests of the Twentieth Century.* Cambridge, Mass. and London: Harvard University Press, 1977, vii + 339 pp. Ill. $15.00.

At the turn of the century in the United States, the life expectancy at birth was 49 years, by 1971 it had increased to 71 years. This increase reflected decreased mortality from the infectious diseases, such as tuberculosis, influenza and pneumonia, gastroenteritis, diphtheria, and typhoid fever. In this book Dr. Dowling, who actively participated in the clinical work that resulted in the decline of infectious-disease mortality during this period, recounts much of the laboratory and clinical work that resulted in this remarkable achievement.

After first briefly reviewing the contribution of public health measures—the programs of preventive immunization and serum treatment—during the first quarter of the century, he discusses streptococcal infections, tuberculosis and venereal diseases. He then considers separately the development and use of the sulfanilamides, penicillin, streptomycin and other antibiotics. This is followed by a review of the newer vaccines developed for influenza, poliomyelitis and other diseases. The task is completed by a brief philosophical overview of these accomplishments, which includes consideration of the relative role of other social and environmental factors that may have contributed to the decline in mortality. He also briefly discusses currently prominent infectious diseases, such as the "slow-viruses" as well as the potential limitations of antibiotics.

The story is told in a fascinating way, although the account is not a balanced one. More than half of the textual material is devoted to the development of chemotherapeutic and antibiotic agents. Only brief mention is made of the contributions of sanitary engineering and the role of organized community efforts and social organizations, such as health departments which provided the infrastructure by means of which many of the laboratory and clinical discoveries were applied to the population at large. However, it must be granted that the author does implicitly indicate that these and other factors did play a role in the decline of infectious diseases.

The story of the development of the Salk poliomyelitis vaccine requires some amplification based on this reviewer's personal knowledge. The trial of the Salk vaccine in 1954 was, as Dowling points out, conducted earlier than advised by the scientific experts, at the direction of O'Connor, then president of the National Foundation. He does not mention, however, that the reason for this was the failure of the Foundation-supported gamma globulin program in 1953. Furthermore, the randomized double-blind controlled study was included in the Salk vaccine trial because two large State Health Departments refused to participate unless this was done.

Essentially, Dowling has presented an extensively documented and integrated account of the development of chemotherapeutic and preventive immunizations in a manner which will interest the medical and social historian, as well as the physician. However, a complete account of the decline of infectious diseases in the twentieth century which includes a discussion of the reasons for this, requires an additional volume.

Reviewed by ABRAHAM M. LILIENFELD, M.D., M.P.H., D.Sc., Department of Epidemiology, The Johns Hopkins University School of Hygiene and Public Health, Baltimore, Maryland.

THOMAS E. CONE, JR. *History of American Pediatrics*. Boston: Little, Brown and Company, 1979. xiv + 278 pp. Ill. $18.95.

Dr. Cone, Clinical Professor of Pediatrics at the Harvard Medical School and Senior Associate in Clinical Genetics and Medicine at Boston's Children's Hospital Medical Center, begins his study of American pediatrics with the early seventeenth century and brings it into the 1970s. Except for the multivolume social history *Children and Youth in America* (1970-1974), a source-book of documents which includes sections on child health care, there are no extensive surveys of the subject. Fielding H. Garrison's *History of Pediatrics* (1923), John Ruhräh's *Pediatrics of the Past* (1925), and George Frederic Still's *The History of Paediatrics* (1931) are all significant secondary sources, but their focus is not American pediatrics. For attempting to fill this gap and, as Dr. Cone writes, to "stimulate interest in the historical development of this branch of medicine," the author deserves the appreciation of everyone interested in the history of child health care.

The text consists of three major units: the colonial period, the nineteenth century, and the twentieth century. Each unit is divided into chapters—ten chapters in all, and each chapter is clearly partitioned into subtopics. The organization of the book, therefore, is not that of an integrated, interpretative, narrative history. Rather, the book has a format reflective of scientific writing which interrupts the continuity of the story and detracts from its readability. One would be hard pressed, however, to find anyone—trained historian or physician—who could discuss the clinical and scientific aspects of the subject with the ease and familiarity that Dr. Cone has done.

We learn how slow and sparse were the changes in the medical treatment of children until the final decades of the nineteenth century. Similarly, with the important exception of smallpox, there was also very little change in the area of preventive medicine as it affected children. While much of this information is not necessarily new, the author in his discussions of birth defects, accidents, and diseases, given alongside such topics as the medical training and practice of physicians, available pediatric information for parents, and child rearing practices in general, presents the material in an interesting light. The chapter on infant feeding in colonial times is an excellent summary of the subject.

As American urban centers grew and industrialization expanded throughout the eighteenth and nineteenth centuries, the medical problems of children in the cities increased. Dr. Cone's history eases smoothly from the colonial period into the nineteenth century, but why does he use the year 1850 as a dividing point for the nineteenth century? Other than being a mid-century guidepost for the comparison of birth rate, mortality, and population statistics, there is nothing very noteworthy about the year for the history of pediatrics. This is all the more perplexing because later in the chapter Dr. Cone informs the reader that learning "how to overcome this formidable cause of infant mortality became the prime mission of pediatrics for the six decades between 1870 and 1930" (p. 101). Certainly we would have to look long and hard to find an historical period that had a greater impact for better health care of children than the years extending from about 1870 to World War I.

This was the time when Abraham Jacobi and Job Lewis Smith laid the foundation for the specialty of pediatrics, when Henry L. Coit and Nathan Straus tried to reduce the terrible infant mortality rate by introducing Certified Milk and offering pasteurized milk at the infant milk stations, and when Thomas Morgan Rotch and L. Emmett Holt trained future generations of pediatricians with their teaching and their textbooks. It was also the period when biochemical investigations in pediatrics began, when New York City established the country's first Division of Child Hygiene with S. Josephine Baker as its Head, and when the nation, in 1912, acquired the U.S. Children's Bureau, the first federal office concerned with the health and welfare of children. By the end of this epoch, a transformation in the medical treatment of children and in the social attitude toward them had taken place. In the subsequent decades of the twentieth century, the pediatric outlook, practice, and research—particularly with respect to therapeutics—would be refined and greatly advanced.

Encyclopedic in scope, Dr. Cone's work is packed with historical data; especially strong are the areas dealing with infant feeding and nutrition. In a survey of this kind, one frequently can find some minor errors in the text or references, as well as some omissions of subject content. There is no need to dwell on the former, but two examples of the latter should be noted. Totally absent from the book is any mention of Dr. Martha May Eliot who, denied entrance to the Harvard Medical School because she was a woman, received her M.D. from Johns Hopkins in 1918 and became the first Resident in the new Department of Pediatrics at Yale. Her New Haven studies of rickets (1923-33) launched her on a distinguished career of community pediatrics, culminating in her being the Chief of the Children's Bureau from 1951-56. Upon her retirement from the Bureau, she became Professor and Head of the Department of Maternal and Child Health at the Harvard School of Public Health.

Not unrelated to the subject of Dr. Eliot is the role of public health theory and practice in its relation to the health care of children. Dr. Cone does discuss various elements of the child welfare movement, and these could be interpreted as aspects of a changing public health, but the author does not cross the line to acknowledge adequately the subject of public health—a field which cannot be excluded from the history of child health care. Pediatrics, more than any other medical specialty, is intricately enmeshed with the concept of preventive medicine and the practice of community public health (and to an extent even the field of social welfare), all of which adds to the difficulty of writing a history of the subject. To give just one example, the dominant motive of the "modern public health campaign" in the early twentieth century was, according to C. E. A. Winslow, "the education of the individual in the practices of personal hygiene," and this discovery of popular education as an instrument in preventive medicine "proved almost as far reaching in its results as the discovery of the germ theory of disease thirty years before." Furthermore, "the two forces of education and medical service are mutually complementary and inseparable." (Winslow, *The Evolution and Significance of the Modern Public Health Campaign* [1923], pp. 53, 59) The inclusion of health education in the public schools and the adoption of health education ideas by foundations and philanthropic institutions, insurance companies, and civic groups had an enormous impact on the health of children.

Dr. Cone's work belongs on the bookshelf of everyone interested in the history of American pediatrics. It is a compendium of subject and biographical data and has an excellent index, divided into names and subjects. The book has a generous number of illustrations, particularly portraits, and it includes a wealth of bibliographical references for the student and the scholar; for an inexplicable reason all the monographs cited omit page citations. Finally, the foreword contributed by Samuel X. Radbill is an eloquent addition to Dr. Cone's useful volume.

Reviewed by MANFRED WASERMAN, History of Medicine Division, National Library of Medicine, Bethesda, Maryland.

MARGARET RIPLEY WOLFE. *Lucius Polk Brown and Progressive Food and Drug Control: Tennessee and New York City, 1908-1920.* Lawrence, Kansas: The Regents Press of Kansas, 1978. x + 194 pp. Ill. $12.50.

This modest study follows the career of Lucius Polk Brown, a leader in food and drug regulation in the first two decades of this century, from his beginnings in Tennessee to the end of his public career in New York City. Brown's life is unusual in that his career offers us the opportunity to compare food and drug control in largely rural Tennessee to that of the country's most highly populated metropolis, New York City. In addition this work provides some insights into the professionalization of public health officials in the progressive era and their success in introducing scientific management into the political arena.

Lucius Brown, who was born in Tennessee, was related to the famous Polk family which included a cousin James K. Polk. Like others eventually drawn to food and drug work, he came from an agricultural background, which fostered his interest in chemistry and scientific farming. After studying chemistry at the University of Virginia and later at Vanderbilt, Brown combined farming with his scientific interests which led him by the 1890s into a partnership in an analytical laboratory in Nashville, Tennessee. By the turn of the century, Brown had been caught up in the national fight for the passage of federal regulation regarding the purity of foods and drugs which was being waged by Dr. Harvey Wiley and other state agricultural chemists.

Although Brown did not play a key role in the passage of the 1906 Pure Food and Drugs Act, he found himself head of Tennessee's new Pure Food and Drug Department which had been set up under a state act which complemented and, indeed, was prompted by the new federal law. For the next seven years Brown oversaw the steady growth of this department whose employees increased to ten in number and whose responsibilities grew. In the early days Brown busied himself setting standards for syrups and molasses, policing labeling on foods and patent medicines, and cracking down on the watering of oysters. By the end of his stay, his department had taken on the responsibility for administering several laws; one set sanitary standards for hotels, another, an anti-narcotic law, allowed addicts to register and receive drugs legally, and a third, a weights and measure law, attempted to counter short-selling. While his department developed, Brown built up public support for his programs and this enabled him to weather gubernatorial changes that potentially endangered his position.

By 1915 Brown could look back on seven years of modest but successful achievement. Not only was he recognized in Tennessee, but also his national reputation as an expert on pure food and drugs had increased. Being ambitious, in 1915 Brown applied for a position as head of the Bureau of Food and Drugs in the Department of Health of New York City and won it. Brown arrived in New York at an unusual time politically. The mayor, John Purroy Mitchel, was something of a political accident. His election as a Fusionist candidate with backing from Republicans, Independents, and William Randolph Hearst had been aided by the death of the former Tammany-backed mayor and the impeachment of the Tammany-backed governor. Mitchel's term from 1914 to 1918 provided reformers and health experts in New York City with a rare but brief interlude for their social experiments.

In New York City, Brown found a large Department of Health which had evolved eight standing bureaus of which his—the Bureau of Foods—was one. His bureau employed some 188 people—a far cry from his Tennessee experience but undaunted by the size of his new bureau, Brown began his new work eagerly. Using publicity campaigns to improve food handling conditions and unannounced raids to thwart unscrupulous food dealers, Brown made his presence known in the city. The most surprising change Brown initiated was a grading system for all restaurants in New York City. Brown had previously implemented such a system in Tennessee. By 1917 the Board of Health had amended the Sanitary Code requiring every eating place in the city to obtain a permit from the Commissioner of Health to stay in business.

Tammany Hall was not long subdued and in the 1917 election Mayor Mitchel was ousted at the hands of Tammany's John F. Hyland. The days of the reformers and experts were limited. The politicians quickly moved to replace the appointees of the previous administration. Brown, specifically was hit with a vague list of charges ranging from "neglect of duty" to "incompetency." However, in public hearings on the charges, Brown was exonerated, becoming the only bureau director vindicated of charges leveled against him by the Hyland administration. Ironically the new health commissioner who wielded the hatchet for Tammany Hall was Royal S. Copeland, an ophthalmologist, who went on to the U.S. Senate in 1923. Copeland in the 1930s became the main Senate spokesman for food and drug reform. This movement eventually led to the passage of the Food, Drug and Cosmetic Act of 1938. Brown, greatly dispirited by the Tammany purge, soon left the New York City Health Department and after a brief stint in the U.S. Army's Sanitary Corps returned to private life in Tennessee in 1918.

This nicely written study provides a glimpse at food and drug control in Tennessee and New York. However, one might wish that the author had given a greater sense of the state of adulterated foods in these two locales. How badly adulterated was the food? Was it primarily a problem of sanitary handling, the use of additives, or both? Who really was pushing for greater regulation? We only get a glimpse of these problems with no real detailed examination. Regarding the long range success of such progressive reformers as Brown, the author concludes that the progressives' "greatest failure centered on the creation of hollow bureaucracies that were subject to political influences and incompetences." Without the necessary political skill, the very logical, rational agencies set up by the reformer could be turned against the reformer's causes.

Reviewed by RICHARD E. MCFADYEN, Ph.D., History Department, University of North Carolina at Greensboro, North Carolina.

[R.] GWYN MACFARLANE. *Howard Florey: The Making of a Great Scientist.* Oxford: Oxford University Press, 1979. xvi + 396 pp. $18.95.

Among the stated purposes for writing this very readable account of the life and activities of Howard Florey is Gwyn Macfarlane's desire to correct the "false impression" as to whom the credit should go for the introduction of penicillin into therapeutics. "The name that occurs to almost everyone," Macfarlane contends, "is that of Fleming . . . while those whose immense labours ten years later made penicillin therapy a reality remain almost unknown." Brief inquiries have revealed that Macfarlane is right with regard to Fleming but not quite right in assuming that Florey, Chain and the Oxford unit are "unknown." After all, Florey reached heights not attained by Fleming, the peerage and the presidency of the Royal Society, for example.

But the assumption of credit by Fleming obviously and with cause rankles those who are aware of the work of Florey and his group and Macfarlane deliberately, but rather calmly, demolishes the "Fleming myth." Fleming, he points out, rationalized and inflated his role and obtruded himself into the picture unabashedly. Fleming had seen the possibility of the use of penicillin only topically and lost interest in it until after he learned of the activity at Oxford. (Macfarlane does not go to the extent of Hare in recognizing that even without his discovery of penicillin Fleming would have left his mark on bacteriology.) The kindest judgment in the matter is that of Harry Dowling: "Perhaps Fleming unwittingly did Florey and the Oxford group a favor by monopolizing the limelight."

Although Macfarlane has made use of Abraham's and Bickel's biographies and Hare and Wilson's histories of penicillin, he has had recourse to extensive manuscript and archival materials. Notes, letters, and diaries were placed at his disposal and he interviewed many of the people involved. Macfarlane himself was Clinical Pathologist at the Radcliffe Infirmary for over 25 years starting in 1945 and Professor of Clinical Pathology at Oxford from 1964 to 1967, so that he was very close to the activity at the Dunn School. All of which gives an intimate and authoritative touch to the biography.

The book opens with an historical introduction that describes the work of Jenner, Pasteur and Lister in some detail since their work "forms a logical sequence with [Florey's] own that spans . . . the gulf between almost total therapeutic helplessness and the virtual defeat of most of the important bacterial diseases." The works of Koch, Behring, Ehrlich and Domagk, which one might consider part of the same sequence, are relegated to later discussion more or less *en passant;* Behring is not even named, although Geissler's injection of the diphtheria antitoxin is mentioned.

The next ten chapters deal with the pre-penicillin period and, with the exception of one devoted to Fleming, trace the life and career of Florey from his family background in Adelaide to his assumption of the chair of pathology at the Dunn School in 1935. Throughout this section of the book there is a running account of the personal life of Florey, particularly based in the early years on his letters to Ethel Reed who was to become the first Mrs. Florey. Macfarlane handles his hero gently with regard to his domestic affairs: the blame for their unhappy married life is laid, without rancor, on Ethel. (Florey's "sole emotional outlet . . . for many years was to be his work.") Yet the account reveals that Florey was an egotistical, self-centered, ambitious person who was dedicated to his career and his research and who was no great success as husband and father, and, for that matter, as a son. Macfarlane's judgment of Ethel's culpability is based in part on a bill of complaint with which Florey responded to Ethel's similar bill after they had been married eight years. Unfortunately Ethel's memorandum has not been preserved.

Macfarlane had the complaints of only one protagonist to go on, beyond the impressions of the few friends who knew the Floreys. (It will not endear Macfarlane to certain readers to find that he accuses Ethel of pursuing "a feminine ambidexterity.")

The major thrust of the pre-penicillin story is of course the unfolding of his career and scientific progress. Those interested in the politics of moving upward and onward in the British scientific establishment will find this book an interesting case study. The essential ingredients of Florey's progress were ability, promise and accomplishment. Of these he had an unquestionably outstanding pedigree, as evidenced by the men who supported him, men like Sir Charles Sherrington and Edward Mellanby. (It is interesting to note that the British system accepts the "open testimonial," that is, letters of recommendation of an individual supplied to that individual.) More important, the book traces Florey's pre-penicillin scientific activity. This was prodigious and significant. It included studies on the microcirculation, inflammation, vascular pathology, the lymphatic system, the functions of the lymphocyte, mucous secretion, gastro-intestinal function and lysozyme. Missing, however, is any appreciable account of Florey as a teacher; indeed, although we are told that Florey "had the satisfaction of putting his own views on scientific medical education into effect" at Cambridge, we are not told what those views were.

The last portion of the book (Chaps. 12-15) deals with the penicillin story. The story told is the familiar one, but a few details merit special mention. First, Florey's interest in penicillin was originally that of "an interesting scientific exercise"; therapeutic value was (in 1939) "the least consideration." Similarly, although Macfarlane does not make the point explicitly, Florey's motivation when coming to the United States was in getting sufficient supplies for clinical testing, not for getting mass production to meet military needs. In addition, Macfarlane gives Ethel Florey credit for the excellent work she did in supervising the clinical trials of penicillin. Finally, Norman Heatley's activities, often at critical moments, are given due recognition. Heatley invented the "cylinder plate" for penicillin assay; Heatley suggested to Chain that penicillin could be passed from ether back to water if it were made alkaline; Heatley designed the culture vessels used in growing the mold at the Dunn School; Heatley did yeoman service as advisor and trouble-shooter for American pharmaceutical houses in the production of penicillin. These were but some of the activities of the man who "was a key figure," largely unrecognized, in the development of penicillin as a therapeutic agent.

A final chapter, the "Epilogue," gives a rapid survey of the developments after penicillin had been proven. Clearly there is room here for another book.

Macfarlane's work is essentially a scholarly and balanced presentation, but there are times, in the absence of documentation, that the reader must wonder whether some of his evaluations and summaries are the result of his knowledgeable intuition, his rationalization, or his conjecture. For example, we can not tell whether the lengthy explanation of why Florey shied away from publicity (pp. 349-350) was Florey's reasoning or Macfarlane's rationalization. (Macfarlane does note elsewhere that Florey's reticence to counteract the Fleming publicity was the result, in part, of the fact, pointed out to him by Dale, that as a member of the Council of the Royal Society he would soon have to pass on Fleming's candidacy for a Fellowship in the Society.)

Similarly, Florey's attitudes toward clinicians (pp. 210 ff.) and his detestation of militarism, nationalism and political oppression (p. 258) are undocumented. And frequently much that he has to say about Ethel Florey (pp. 155 ff.) must be taken on the author's say-so. Finally, one would suppose that Florey's interest in patents derived solely from Chain's insistence (p. 336) and that Florey was generally above such mundane considerations. There is, however, a telling statement of Florey's attitudes, not mentioned by Macfarlane, in the Florey-Heatley correspondence. On January 11, 1942, writing from England to Heatley in New Jersey, Florey said, "I am quite prepared to deal with them [Merck & Co.], or with anyone else for that matter, provided that they are prepared to give us a decent quid pro quo. As far as I can see the people here expect to pick our brains for nothing. I am very much interested about your statement about Kline French & Co. . . . . You can inform them that I have no scruples in taking help from where I can get it, provided I am not asked to do anything to infringe my academic status or that of the department." This was a very practical outlook that does not detract from the stature of the man.

According to the sub-title of the book, Macfarlane classifies Howard Florey as "a great scientist." The author's criteria are that Florey was a pioneer, a discoverer, a dedicated research worker, and a success. Florey was not a brilliant originator of ideas but he did possess the gift of recognizing the important fact or event in research and he was a prodigious worker who possessed a great technical skill. His reputation had been made even before his work with penicillin. He was, moreover, capable of bringing together and managing, and getting support from, a team of brilliant workers.

Macfarlane's book may not get Florey the recognition he deserves for it is not likely to be widely read by those who do not already have some awareness of Florey's role. But the knowledgeable reader will appreciate Macfarlane's work and will enjoy his interesting portrayal.

In the discussion of lymphocytes Macfarlane makes the interesting comment that "when a number of conflicting theories coexist, any point at which they all agree is the one most likely to be wrong." Some day Macfarlane's Law may take its place in the ranks with Murphy's Law and Parkinson's Law.

The index to the book has been found wanting—a complaint too often heard these days.

Reviewed by David L. Cowen, M.A., Professor Emeritus of History, Rutgers University, New Brunswick, N.J.

Jacques M. Quen and Eric T. Carlson (Editors). *American Psychoanalysis: Origins and Development.* The Adolf Meyer Seminars. New York: Brunner/Mazel, 1978. xii + 216 pp. $15.00.

Interest in the history of psychoanalysis has greatly increased in recent years. Since Maria Dorer published what was probably the first serious intellectual history of psychoanalysis in 1932 and since Ernest Jones finished his monumental biography of Freud in 1957, many scholarly works on the subject have appeared. American psychoanalysis, the area treated by Quen and Carlson's volume, has been discussed by Oberndorf, Hale, Burnham, and Shakow and Rapaport. However, most attention has been devoted to the pre-1918 period, and the subsequent phases await their historian. The book under review, while not put forward as a systematic history of the middle and later stages in the development of American psychoanalysis, has several essays which lay important groundwork for that project. Quen and Carlson have assembled pieces by a fine group of professional historians and clinician-historians, and I know of no better way to present their volume to the reader than by taking each article in its turn.

In "Psychoanalysis and the Europeans" Hannah Decker, who recently gave us *Freud In Germany* (International Universities Press, 1977), examines the paradox that Freud's ideas took root most propitiously in the America that Freud despised rather than in the Europe where he craved success. American factors which militated in favor of psychoanalysis included the less rigidly established scientific orthodoxy and an emphasis on the meliorability of man. Although American optimism and concern with the "here and now" modified certain aspects of analytic theory and therapy, American psychoanalysis has been much more closely patterned on European than many of us realize. Much of our analytic training is based on the Berlin model and the very words "institute," "candidate," and "control analysis" reflect the German heritage.

Barbara Sicherman's article, "The New Psychiatry," deals with the profound changes in American psychiatry from 1895-1921. She demonstrates that the times were ripe for Freudian theory. The old emphasis on medical materialism was no longer in vogue, psychiatry itself was on the rise, and psychosocial factors were being taken into account by men like Meyer, Putnam, and Prince. She vividly portrays the beginning of psychiatric imperialism—its progressive expansion from state asylums to psychopathic hospitals, to general hospitals, to medical schools, and its increasing claim to the provinces not only of psychotherapy but of social and community prevention as well.

In "American Psychology and Psychoanalysis," Dorothy Ross shows us that the ground in psychology was just as fertile for Freud as was that of the culture in general and of psychiatry in particular. Analytic ideas came to our shores at a time when psychology was functionalistic, eclectic, anti-establishment, and Europhile. Leading psychologists like G. Stanley Hall integrated psychoanalysis into their own functional framework and did much to spread Freud's influence. Particularly interesting is Ross' idea that in the 1920s and 30s there was a temporary puritanical backlash to the increasing sexual openness of the previous years, and that this backlash was partly responsible for the rise of Watson's sexuality-denying behaviorism. By then, she feels, psychology had lost its flexible and eclectic outlook—with inimical results for both psychology and psychoanalysis.

John Burnham, one of the best historians writing on psychoanalysis today, contributed a chapter on Freud's influence on American culture. Frued's effect has been mediated both by analysts and, more often, by cultural agents with little or no comprehension of psychoanalysis as a whole. At one point Burnham asks whether psychoanalysis should be viewed more as a determinant of the sexual revolution or as a rationalization of changes that had already been set in motion by various social hygiene groups. In a similar and provocative vein, he questions whether the psychoanalytic concept of adaptation might not be an agent of social forces which stress the competent, non-disruptive functioning of American society.

Samuel Atkin, Donald Burnham, and George Pollock furnish histories of the New York, Washington and Baltimore, and Chicago Institutes respectively. Atkin provides a good survey of the impressive history of the nation's first psychoanalytic society and institute (the New York). Donald Burnham does an admirable job of treating the complicated but always interesting history of the schisms and fusions of psychoanalysis in the Baltimore-Washington area. Although Burnham feels that such phenomena are characteristic of analytic politics in general, he relates some of the Baltimore-Washington divergence to special characteristics of analysis in that area: the practitioners were a heterogeneous group (many of them Catholic, for example) and most had received their training here and not in Europe; few central European analysts immigrated there; they often concerned themselves with the treatment of novel cases—schizophrenia, etc. Not being subject to civil war but rather to exodus by colonization, the history of the Chicago Institute makes less lively reading than that of Baltimore-Washington. Nevertheless, Pollock documents that Chicago's contributions have been considerable.

Arcangelo D'Amore, archivist of the American Psychoanalytic Association, and Marianne Horney Eckardt furnish chapters on the general organizational history of psychoanalysis. D'Amore cautions us about certain inaccuracies in Oberndorf's widely read, but largely anecdotal, history of American psychoanalysis. He (p. 136) observes that the early leaders of American analysis were "pragmatists who maintained strong ties to medicine and psychiatry" while the later leaders were European or at least trained in Europe and tended to stress "autonomy, purity, and control over who was qualified and what was called psychoanalysis." Eckhardt examines the four major schisms in New York in the 1940s. She cogently explains much of the conflict that has plagued not only certain institutes in this country, but those in other countries as well, as a reflection of the conflict within Freud himself—between his scientific-empirical and autocratic sides.

Roger Shapiro gives us a chapter on the relationship of ego psychology to Sullivan, Erikson, and object relations theory. He (p. 164) suggests that much of the controversy among analysts engendered by new theories (e.g., ego psychology and object relations theory) comes about because the innovators make little effort "to relate the concepts and language they develop to the concepts of Freud and the classical theory despite obvious and important links between the two."

Earl G. Witenberg of the American Academy of Psychoanalysis and Arnold Cooper and Robert Michels of the American Psychoanalytic Association have written pieces on the future of psychoanalysis. Both articles concede that the future of psychoanalysis will be in part determined by many factors—social, political, ethical—beyond its control. Both are optimistic that, despite certain theoretical and technical modifications, psychoanalysis as both a profession and an investigative technique will survive. Witenberg favors the organization of analytic institutes independent from their local societies—like the Chicago and White Institutes. He resurrects Freud's idea of a holistically-based psychoanalytic university and predicts future theorizing will go in two directions: linguistic-structural and interpersonal. Cooper and Michels feel that, far from being on its last legs, psychoanalysis has only just begun to shift from a reverence for Freud to a true identification with his spirit of independent inquiry. While they see a need for modifications in drive and economic theory and in the emphasis on the Oedipus complex, they see the basic dynamic model (with its genetic point of view and adherence to psychic determinism) as sound. They predict (p. 193) that analytic theory will be "increasingly psychological [rather than biological] in language, linguistically informed, influenced by information theory, and will draw heavily from its boundaries with psychophysiology and ethology."

Overall, Quen and Carlson's volume is well done and a testimony to the high caliber of the seminars at the Cornell Section on the History of Psychiatry. Some of these papers have a broader appeal to historians, while others will be of primary interest to the practicing analyst—whether or not he is also a historian.

Reviewed by EDWIN R. WALLACE, IV, M.D., Department of Psychiatry, Yale University, New Haven, Conn.

ALLEN G. DEBUS. *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries.* New York: Science History Publications, 1977. 2 vols. 595 pp. $60.00.

The prize-winning volumes (1978 Pfizer Award of the History of Science Society) provide excellent distillations of the thoughts of some of the sixteenth- and seventeenth-century chemical and medical chemical philosophers. Allen Debus, who set a modest goal for these volumes, discusses the chemical philosophy itself rather than its wider implications and the influence it has had, although, he acknowledges that the latter was tremendous. Debus' research has spearheaded the acceptance of alchemy and chemistry as integral to the development of the Scientific Revolution. Chemical philosophy in this period was a rich amalgamation of the natural sciences and of mystical beliefs from eastern and western cultures which the medical chemist was compelled to learn. Paracelsus and Van Helmont taught that drugs were formed from sources derived from all parts of the earth. Therefore it was essential for physicians, who accepted medical chemistry, to study alchemy, cosmology, geology, mineralogy and biology to learn the secrets of nature. They no longer relied on ancient medical theories or prescriptions. Robert Bostocke, an English disciple of Paracelsus, typifies those who explained diseases by analyzing the world at large, and then, extrapolated to the microcosm of the human body. In these two volumes Debus provides an interesting panorama of the major concerns of medical chemistry, especially Helmontian vitalism, the changing concepts of the chemical elements, the microcosm-macrocosm relationship, the mechanisms and theories of chemical activity, including the acid-alkali theory, the analysis of spa waters, chemical medicines and theories of diseases. The author has interpreted these ideas and reaffirmed the important fact that, although Galenists and Paracelsians were in conflict in this period, nevertheless, many physicians applied treatments that were derived from both philosophies. Given this the reader would like to know more about actual laboratory practices and physician-patient interactions. The theoretical basis for treatments was incomplete and provided a justification for various therapies.

Prof. Debus has taken much care to consult a variety of original sources including manuscripts and rare volumes. However, he has omitted discussion of some recent studies that have complemented and extended his own interpretations. This reviewer would have preferred, since his goal was to produce a synthetic text, that he had delayed his publication for a few more years, if necessary, and incorporated the work of Owsei Temkin, Owen Hannaway and Charles Schmitt, to name a few. He was aware of their important publications although they appeared after his own manuscript was completed.

Debus acknowledges another obvious omission in these volumes, namely the social implications of the chemical philosophy. The integral relationship between the sixteenth- and seventeenth-century medical chemists' ideas and practices and their social status, views and behavior would seem to preclude the possibility that the historian could safely divide the non-academic aspects of these philosophers' lives and thoughts from their chemical and medical ideas and practices.

In the sixth chapter Debus does demonstrate the important ties between "education, agriculture and economic implications of the chemical philosophy," but as this constitutes only sixty-six out of 553 pages there is not enough space to take up a number of other equally interesting questions with societal implications. For instance, Debus devotes a section to Edward Jorden (pp. 344-357) but only comments on one of his two books. He explains that in Jorden's other book, which is devoted to the subject of witchcraft, Jorden attributes an attack of demonic possession, frequently diagnosed in women, to natural causes. Esther Fischer-Homberger[1] suggests that Jorden was a misogynist and was one of a succession of physicians who found it expedient to diagnose a woman's disease in a way that would reflect upon her in the least flattering manner, i.e., that it was natural for a woman to become possessed by evil spirits. What more might be said about Jorden and medical chemical reformers and their impact on the conception and treatment of women's and children's diseases? Did they make distinctions between the sexes in terms of the diseases they contracted which may have differed from the diagnosis of other physicians? Allen Debus is one of the few historians who could tackle this and other questions aimed at revealing the social implications of medical chemistry if he wished. Debus has the solid grounding in the philosophical, scientific and theological views needed for a good social-historical study of the period. In fact, Debus' whole-hearted effort to comprehend the medical chemist on his own terms provides one of the best foundations for studying the social history of the period.

The methodological issues raised by these volumes also deserve comment. Historians of science and medicine appear to have set unusual standards for themselves, and in so doing, have criticized books that are synthetic. Historians accept and encourage reprints of all types of books in their specialties, but they seem to object to their colleagues who collect ideas from their own publications and synthesize them into a book. The dearth of synthetic books in the history of science and medicine appears to be a consequence of this outlook. However, it seems unfair to take Debus to task for having published in two volumes those discoveries which he had revealed in dozens of articles and previously published monographs over the past two decades. In part, Debus is a victim of his own energy and capacity to organize quickly his research discoveries into informative and interesting papers. Nevertheless, there are good reasons for recasting in a volume or two the ideas and data related to an important historical subject, such as that exemplified by sixteenth- and seventeenth-century medical chemistry. Debus might have reprinted his papers, as others have done; however, he elected to undertake the more laborious task of rewriting and reorganizing the information, as well as adding new material, so that readers could better understand the complexity of this topic and his illuminating conclusions. For all this he deserves much praise. Now the major goal remains to broaden the scope of studying medical chemistry in the sixteenth and seventeenth century and to ask questions which are not stated explicitly in the original literature, but which can be answered by reading and analyzing the literature in the light of recent historical methodology. One fine example of such work is an article entitled "Medical Practitioners" by Margaret Pelling and Charles Webster which appears in *Health, Medicine, and Society in the Sixteenth Century* published by the Cambridge University Press in 1979.

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[1] *Krankheit Frau und Arbeiten zur Medizingeschichte der Frau* (Bern-Stuttgart-Wien: Verlag Hans Huber, 1979).

Reviewed by AUDREY B. DAVIS, Ph.D., Division of Medical Sciences, Museum of History and Technology, Smithsonian Institution, Washington, D. C.

HOWARD BRODY. *Placebos and the Philosophy of Medicine: Clinical, Conceptual, and Ethical Issues.* Chicago: University of Chicago Press, 1980. vii + 164 pp. $13.50.

When Pepper wrote his "note on the placebo" in 1945, he called attention to the massive neglect accorded this phenomenon in the medical literature. One can no longer level this criticism in quantitative terms, but we still suffer from a grievous lack of *quality* in writings on the placebo. Experiments on the placebo and new insights are hard to come by; instead, we are subjected to endless reiteration of clichés and prejudices, masquerading as scholarly discussion.

Brody's book is a refreshing exception. Despite its modest length, it covers a lot of ground—from philosophical theory to delightful quotations from such diverse characters as Thomas Jefferson and Richard C. Cabot. Brody also has some sensible recommendations to make about alternatives to placebos (like talking to one's patients!) and the need to eradicate false and harmful beliefs about the placebo. A lot of people will enjoy reading the book, and be provoked by it into thinking more deeply about a fundamental process.

But the book also has its faults. The most important, in my view, is the failure to realize that spontaneous change is a frequent source of effects (both "good" and "bad") that tend to be attributed to such "psychological" factors as suggestibility, attitudes, etc. One reason for this error is mankind's love for the *post hoc, ergo propter hoc* fallacy. Another, and more cogent reason, is that quantifying the two components of the placebo cannot be reliably done without a special trial design, i.e. one wherein patients are randomly allocated to either a placebo or *nothing*. In a hypnotic trial I conducted many years ago, we did just this. In measuring "success" regarding induction of sleep, the placebo seemed quite impressive except that the rate was the same for the "no treatment of any kind" group! The preoperative patients studied simply fell asleep fairly readily without therapeutic aid of any sort.

Failure to appreciate this fact has several consequences. One is to make questionable statements about the placebo potency of old remedies. Brody, e.g., quotes Shapiro to the effect that ancient therapies, despite their rating as "worthless" by medical science today, nevertheless helped patients to get "better at a rate not attributable entirely to the natural recuperative powers of the body." How is one to know this? The same is true for Brody's Case 1 on page 25, where the dramatic relief of pain in a rheumatoid arthritic after sugar capsules is termed an unequivocal placebo effect that no one would dispute. But rheumatoid arthritis is notorious for its spontaneous exacerbations and remissions, so that "placebo effect" in the sense the author is using is by no means "straightforward."

Ignorance of the spontaneous change component also has a devastating impact on attempts to characterize "placebo reactors" or "placebo reactivity." These exercises are difficult enough without loading the dice against yourself by studying the psychosocial characteristics of "responders" who are in fact merely getting better as a consequence of the passage of time. (Placebology is also plagued by the tendency of investigators to call anything—desirable or not—that occurs in anyone—patient or healthy volunteer—a "placebo effect." I have never understood why patients who get better as the result of a placebo treatment should have the same personality profiles as college students who report unpleasant "side effects" after a placebo!)

On the other hand, for the purpose of a control group in a clinical trial, it is not necessary to know the source of the placebo "success rate," since here the placebo serves the same purpose as the chemist's blank: the researcher wants simply to subtract the "background noise" from the total effect obtained in the absence of the variable under study. There are, to be sure, problems in a simple additive model, just as there may be problems for the chemist who is faced with "quenching" of color in a chemical assay, but the principle stated above in general has good theoretical and empirical justification.

For the purpose of ascertaining pharmacologic effect, the placebo response is a nuisance. A subject who does not distinguish between an active drug and a placebo weakens the power of the trial, and if there were a way to pick such subjects out in advance of doing a trial, the investigator would be foolish to include them in a trial. (They are the clinical trial analogues of a deaf music critic or a blind tennis player.)

Brody criticizes sham acupuncture as a control for "true" acupuncture, pointing out (quite correctly) that any nonspecific cutaneous stimulation might promote analgesia. Yet one may still want to test the *theory* behind classical acupuncture treatment. (I refer to the centuries old technique, not the acupuncture "anesthesia" of the last 20 years or so, which is not based on ancient theory.) If so, it is hard to come up with a perfect design. About the best one can do is to use, as a placebo, the insertion of acupuncture needles into the "wrong" spots on the body. If such pseudo-acupuncture works as well as "real" acupuncture, it suggests that the traditional acupuncture sites are at least not specific for obtaining relief.

Compliance with prescribing directions is discussed in this book, but Brody fails to treat adequately the possibility that if different physicians treating similar patients obtain different success rates with the same remedy, it might be due not to classical placebo effects but to differential ability to get patients to take an effective drug in the right amount at the right time.

There is some discussion of past and present use of placebos by physicians, but not enough appreciation of the rarity with which most doctors *purposely* prescribe placebos today. Even when they prescribe B-12 injections or large vitamin C dosage, there is often at least a belief (and some evidence as well) that pharmacodynamics may be involved. This seems to me to put ethical discussions of placebo therapy (à la Bok for example) in a radically different context.

There are three chapters devoted to reviews of philosophical theories; they seem dull and irrelevant to an amateur philosopher. Perhaps they will turn the professionals on.

There are other points that could be made about the book, but I urge the interested reader to dip into the volume for himself. One additional bit of information might be worth recording here, however. Like other writers, Brody wonders why "I shall walk before the Lord. . ." in the 116th Psalm should have been "placebo" (I shall please). I believe the mischief was achieved by translators centuries ago. The Hebrew Bible begins with "et-ha-lech," which is "I shall walk." The Septuagint Greek, however, erroneously changed this to "euaresteso," which was then "correctly" translated into its Vulgate Latin equivalent.

Reviewed by LOUIS LASAGNA, M.D., Department of Pharmacology and Toxicology, University of Rochester School of Medicine and Dentistry, Rochester, New York.

ERNEST WICKERSHEIMER. *Dictionnaire biographique des médecins en France au moyen âge. Supplément* edited by DANIELLE JACQUART. Geneva: Droz; Paris: Champion, 1979 (Centre de Recherches d'Histoire et de Philologie, V: Hautes Etudes Médiévales et Modernes, 35). 365 pp.

Though less convenient than an integrated new edition, this welcome supplement to Wickersheimer's 1936 dictionary reflects both a productive half century and a promising future for the study of medicine in medieval France. Maintaining the catholic scope as well as the slightly archaic format of the original, and under the guidance of such venerable mentors as Guy Beaujouan and Marie-Thérèse d'Alverny, Danielle Jacquart has compiled the substantial addition with scholarly diligence. The inventory has no serious lacunae, even though its margin of incompleteness is admitted rather casually (p. 3) and any student in the field will wish to add several entries (Gautier Blancart, Jacobus Bogaert, Jan Stepanov, Jean d'Artois, Mizaldus, Simon of Bruges, to name a few). The text contains only minor ambiguities (such as the apparent identification of Mesue with Damascenus on p. 117) or inconsistencies (thus. Roland l'Ecrivain on p. 197 but l'Escripvain in the main entry on p. 264), and remarkably few orthographic errors. Of the latter need be mentioned only those that might lead astray a harried researcher: confusion between middle initials and last names could result from the practice of spelling Mc. Vaugh for McVaugh (pp. 29, 44, 77, 101, 179) and, similarly, Mc. Garry (p. 181), Mc. Gurk (p. 100) and Mc. Kinney (p. 44); less consequential is the incorrect citation of this reviewer as E. L. Demaitre (p. 44).

The *Supplément* draws upon a wide range of recent reference works, monographs, and articles in this *Bulletin* and other major journals. Most valuable, however, are the numerous references to obscure regional periodicals, to local archives, and to hitherto overlooked manuscripts. While many of the new data enrich Wickersheimer's notes on major figures, other additional information accents authors who, though often neglected, illuminate the character of medical teaching and practice during the presumably "dark" century after the Black Death: this is the case for Antoine Ricart in Barcelona, Jacques Despars in Paris (subject of Jacquart's 1971 *thèse* at the Ecole nationale des Chartes), chancellor Jacques Angeli in Montpellier, and Johannes de Wesalia (great-grandfather of Andreas Vesalius) in Louvain and Brussels. Listed for the first time, moreover, are several masters who made important contributions to the thirteenth-century shaping of the university curriculum, including Cancellarius, Henry of Winchester and Jean Stephani (Montpellier), and Gérard du Breuil (Paris). Also the world outside the university is more amply represented, most notably in two categories on which Wickersheimer had been compiling information, midwives and medical consultants to judicial diagnoses of leprosy.

Far from being a mere collection of names and citations, the *Supplément* matches Wickersheimer's work as a cornucopia of information on intellectual and social aspects of medicine. It bears out the continued role of the *Articella* in the curriculum, and it attests to the growing interest in astrology. It presents, furthermore, "un échantillonnage varié" (p. 3) on medical practice, ranging from surgical procedures to forensic pathology, and from wonder cures to contracts of treatment. One of the latter contains a waiver of malpractice liability (p. 153), a provision evidently not available to those midwives who were charged with witchcraft upon the deaths of infants (pp. 197, 222). Above all, the entire dictionary offers a treasure trove for essays on the practitioners' status as reflected in their credentials, titles, patients, political functions, and possessions. Historians will find not only useful references crammed between Aalis and Zeno Petri, but also a colorful spectrum stretched between such antipodes as Guillaume Brun and "magister Robertus Fisicus" who both made fame and fortune, the former as ennobled royal physician-astrologer, the latter as alleged counterfeiter.

Reviewed by LUKE DEMAITRE, Ph.D., Department of History, Pace University, Pleasantville, New York.

IAN MACLEAN. *The Renaissance Notion of Woman: A Study in the Fortunes of Scholasticism and Medical Science in European Intellectual Life*. New York: Cambridge University Press, 1980. viii + 119 pp. $16.50.

This work surveys assertions about the nature of woman made by learned authors in the fields of theology, medicine, ethics, political thought, and law from the late fifteenth to the early seventeenth century. Readers of this journal may feel inclined to turn first to the chapter on medical opinion, but the whole work is relevant to the history of medicine considered in its intellectual and social context. One of the book's chief strengths is the author's effective demonstration of the way in which commonplaces about women were repeated from one field to another and thus mutually reinforced. Although Maclean approaches his subject strictly from the standpoint of intellectual history, his exposition of the fundamental assumptions about female nature shared by authorities in all three of the learned professions contributes also to our understanding of the social impact of medicine in sixteenth-century Europe.

The ideas about women put forward by learned writers in this period were not, of course, for the most part original. Maclean carefully delineates the ancient sources of authoritative opinion: for the theologians, the Bible and Aristotle; for the physicians, the Hippocratic writings, Aristotle, and Galen; for ethical and political writers, Aristotle and such moralists as Seneca and Plutarch; for the lawyers, Roman law. Maclean also makes it clear that commentary upon an authoritative text was still an important vehicle of intellectual discourse in all fields. In most of the chapters, too, full weight is given to the medieval contribution to the discussion and reconciliation of ancient authorities. Despite the shift in style and focus and the broader knowledge of ancient texts associated with humanism, the theological innovations of the Protestant Reformation, and the work of sixteenth-century anatomists, the fundamental ideas expressed in most learned discussions of women's intellectual, moral, and physical nature did not change very much between the thirteenth century and the late sixteenth. Maclean believes, however, that between about 1580 and 1630 scholarly works proposing "some revision in the notion and status of woman" began to appear in significant numbers and prepared the way for the seventeenth-century French polemics on behalf of woman examined in his earlier *Woman Triumphant: Feminism in French Literature, 1610-52* (Oxford, 1977). While one might question Maclean's use of the term "feminist" to describe writers advocating any modest theoretical reassessment of the traditional estimate of woman as physiologically, mentally, and in some respects morally the inferior of man (a usage explained and defended in *Woman Triumphant*, pp. vii-viii, but not in the present work) his general thesis is persuasively argued and supported by abundant evidence.

The chapter devoted to "Medicine, Anatomy, Physiology" contains an erudite review of the treatment by numerous sixteenth-century academic medical authors of such questions as whether the female is an imperfect version of the male; the complexional differences between female and male; the role of the female in generation; the manner in which sex is determined in the embryo; and the psychology of woman and its relation to her physiology. Maclean does an excellent job of showing how the treatment, and indeed the selection, of these topics derived from Aristotle and Galen. His account serves as a valuable case study of the often complex interactions between a vigorous Galenism, a revived Aristotelianism, and the ideas of contemporary medical innovators in the medical thought of the sixteenth century. However, in this one chapter the medieval background is less than adequately summarized. The subjects of woman's complexional characteristics, sex determination in the fetus, and, above all, the differences between Aristotle and the Galenic medical tradition about the female role in conception (Galen and his followers affirming the role of an active "female semen" absent in Aristotle's account) were all discussed by Latin writers on medicine and physiology from early in the thirteenth century. The scholastic authors who treated some or all of these topics included Albertus Magnus (*De animalibus* IX.2.1-6), Aegidius Romanus (see M. Anthony Hewson, *Giles of Rome and the Medieval Theory of Conception,* London, 1975), and various Italian university-trained physicians, most notably Dinus de Florentia (Dino del Garbo, d. 1327) in his commentary on the *De natura foetus* (or *pueri*) attributed to Hippocrates; none of the foregoing are mentioned in the work presently under discussion. The sixteenth-century debate was, however, apparently more extensive than its medieval predecessor, in addition to relying upon a somewhat wider range of Galenic texts and being influenced to a certain extent, as Maclean shows, by such contemporary anatomical findings as Falloppio's description of the female genitalia.

Maclean's work is a useful contribution to the intellectual history of the sixteenth century, which expands our knowledge of the relationship of physiological ideas to other currents of thought in the period.

Reviewed by NANCY G. SIRAISI, Ph.D., Department of History, Hunter College of The City University of New York, New York.

A. MCGEHEE HARVEY. *The Interurban Clinical Club (1905-1976): A Record of Achievement in Clinical Science.* Philadelphia: W. B. Saunders, 1978. xiii + 573 pp. Ill.

The Interurban Clinical Club has played a seminal role in the development of academic medicine in the United States. Founded in 1905 by William Osler, the club has drawn its membership from the leading clinical scientists of Baltimore, Philadelphia, New York, New Haven, and Boston. From its beginning the organization has served two important purposes. It has provided a way to bring together leading medical scholars for camaraderie and exchange of ideas. Equally important, it has provided a meeting ground for leaders of academic medicine to make decisions about medical school appointments. As Harvey writes in the preface to the book, "The meetings of the Interurban Club provided a forum where young men, wishing to engage in a career of clinical science, could present their work for evaluation and could be known to the leaders of medicine whose counsel was sought regarding the recruitment of faculty members." In both these ways the club contributed substantially to building a community of academic medicine in the United States. Although many organizations of academic doctors now exist, the Interurban Club continues to function today.

In this volume A. McGehee Harvey has recorded the history of the Interurban Club from its inception until 1976. In doing so, he has assembled a large array of valuable material. He has studied the club in chronological fashion, with chapters corresponding to decades. In each chapter there is a record of the scientific programs, a section on the dinner meetings, and biographical sketches of members elected during that decade that focus particularly on the members' scientific achievements. A great deal of important information is provided about the contributions of these leaders to clinical research.

Harvey has not attempted to write an interpretive account of the club. His goal has been to provide a chronology of events rather than to place the club's activities in a historical context. He has accomplished his primary task exceedingly well, and the book should be a valuable research tool for decades to come. The book also contains an important message. No one understands better than Harvey the historical process by which medicine became "scientific." The emergence of the basic sciences of medicine in the nineteenth century was only the beginning of that process. Equally important was the recognition that scientific methods applied to the study of disease and therapeutics, not just the healthy organism; the rise of the clinical investigator; and the spread of university ideals to the clinical as well as the basic science departments of medical schools. This theme pervades Harvey's present account of the Interurban Club and provides a message that all historians of medicine should heed.

Reviewed by KENNETH M. LUDMERER, M.D., School of Medicine and Faculty of Arts and Sciences, Washington University, St. Louis, Missouri.

JULIA F. MORTON, *Major Medicinal Plants: Botany, Culture and Uses,* Springfield, Ill.: Charles C Thomas, 1977. xix + 431 pp. Ill. $49.50.

CHARLOTTE ERICHSEN-BROWN, *Use of Plants for the Past 500 Years,* Aurora, Ontario: Breezy Creeks Press. 1979. xxii + 510 pp. Ill.

Julia Morton's book will be of peripheral interest to the historian of medicine, and of somewhat greater interest to the historian of pharmacy, as a reference work for information on the major medicinal plants currently in use in the United States. Greater emphasis is placed on the botany, culture, harvesting and handling of medicinal plants than on their therapeutic uses. A certain amount of historical information on the medicinal uses of the plants is included, but the treatment is sketchy and drawn largely from pharmacognosy and botany textbooks and reference works. A bibliography of over 600 items and extensive illustrations add to the reference value of the book. The bibliography, however, is limited almost exclusively to English language sources, and does not include such classic and still useful (especially to the historian) publications as John Uri Lloyd's *Origin and History of All the Pharmacopeial Vegetable Drugs* (1921), F. A. Fluckiger and Daniel Hanbury's *Pharmacographia* (1874), and Alexander Tschirch's *Handbüch det Pharmakognosie* (1909-1923). For the growing number of laymen interested in medicinal plants, this book will provide more reliable and comprehensive technical information than the typical popular treatises on folk medicines and plant drugs that have flooded the market in recent years.

Charlotte Erichsen-Brown's book will also be of limited use to the historian. Although the title does not make it clear, the scope of the book is restricted to North American plants. After a superficial introduction on the history of the use of medicinal plants by North American Indians and the influence of this knowledge on European medicine, the author plunges into the main body of the text. An illustration and brief description is provided for each plant included, followed by quotations from various sources (accounts of travelers, herbals, textbooks of materia medica, etc.), arranged in chronological order, concerning the therapeutic uses of the plant. No attempt is made to evaluate the statements or to draw any general conclusions. The main value of the book therefore might be to lead one into the literature on a particular medicinal plant. This is not a book for casual reading, but is designed to be used as a source book or reference work. The organization of the work is unusual, reflecting the author's desire to make the book easy to use for the amateur collector in the field. Hence, plants growing in wet open places are grouped together, as are those growing in woods and thickets, etc.

Reviewed by JOHN PARASCANDOLA, Ph.D., American Institute of The History of Pharmacy, University of Wisconsin, Madison, Wisconsin.

DARRYL B. PODELL and WALTER W. WALKER. *Archives Procedural Manual.* 2nd ed., rev. St. Louis: Washington University School of Medicine Library, 1978. v + 134 pp. $7.25.

This is, as the title suggests, the procedural manual for the Washington University Medical School Archives. It is, however, a useful reference for archivists in general and not designed for medical archivists exclusively. It covers a broad range of archival topics from registers and inventories to processing, microfilming, and oral history with exhaustive thoroughness. Particularly valuable is the inclusion of sample forms most of which can be easily modified and adapted for use at other archives. In some instances, though, the use of excessive detail tends to obscure simple points. For example, the flow charts interspersed throughout the manual outline step-by-step formulas for archival procedures in such a belabored manner that the most straightforward tasks take on an uncommon complexity. Also the memoranda on archival theory and definition on a whole proceed to overelaborate the most basic concepts. In addition, the table of contents is extremely confusing and the pagination unclear, both of which detract from the manual's handiness as a reference. There are no major topical breakdowns in the table of contents, but instead a rambling list of each page in the order of its appearance in the manual. As for the pagination, it takes a well acquainted reader to discern that the page numbers are listed in the upper left hand corner of the pages and that form numbers appear in the upper right hand margins. Perhaps the major disappointment of the manual is that access to patient records and case studies is not mentioned at any point whatsoever. Since this is an issue so very pertinent to medical archives and an issue currently under discussion in both the archival and medical professions, it is unfortunate that it has been overlooked altogether.

Reviewed by HAROLD KANAREK, Ph.D., Archivist for the National Historical Publications and Records Commission funded project to arrange the archival records of The Johns Hopkins Medical Institutions and NANCY MCCALL, M.L.A., Assistant Archivist of The Alan Mason Chesney Medical Archives of The Johns Hopkins Medical Institutions.

THE BULLETIN RECENTLY RECEIVED*

Aesculapian Boston: Being a Guide to Place of Medical Historical Interest in the Hub City and Its Environs, with Notes on Famous Personages, Historical Events, and Other Related Topics. Boston: Paul Dudley White Medical History Society, 1980. iii + 131 pp. Ill.

Ernst Anner. *Gelöbnisse der Medizinalpersonen im Kanton Zürich seit 1798.* Zurich: Juris Druck and Verlag Zürich, 1979 (Zurcher Medizingeschichtliche Abhandlungen, Neue Reihe Nr. 135). 76 pp. Swiss Fr. 17.

Hans Rudolf Baumberger. *Carl Liebermeister 1833-1901.* Zurich: Juris Druck and Verlag Zürich, 1979 (Zürcher Medizingeschichtliche Abhandlungen, Neue Reihe Nr. 137). 181 pp. Swiss Fr. 38.

Carl Baumgartner. *Der Anatom Walther Felix 1860-1930.* Zurich: Juris Druck and Verlag Zürich, 1979 (Zürcher Medizingeschichtliche Abhandlungen, Neue Reihe Nr. 132). 37 pp. Swiss Fr. 10.

William Beaumont. *The Career of William Beaumont and the Reception of His Discovery.* New York: Arno Press (A New York Times Company), 1980 (reprint of *Wm. Beaumont's Formative Years: Two Early Notebooks 1811-1821* (1946); *The Reception of William Beaumont's Discovery in Europe* (1942) and G. Rosen, "Notes on The Reception and Influence of William Beaumont's Discovery," *Bull. Hist. Med.*, 1943, *13:* 631-642). xv + 196 pp. $20.00.

Christoph Bossart. *Schweizer Ärzte als Naturforscher im 19. Jahrhundert.* Zurich: Juris Druck and Verlag Zurich, 1979 (Zürcher Medizingeschichtliche Abhandlungen, Neue Reihe Nr. 130). 139 pp. Swiss Fr. 29.

Henry Pickering Bowditch. *The Life and Writings of Henry Pickering Bowditch.* Vols. 1 and 2. New York: Arno Press (A New York Times Company), 1980 (reprint edition). Ill. $70.00.

Hansrudolf Brunner. *Der Bündner Arzt Andreas Flury 1853-1938.* Zurich: Juris Druck and Verlag Zürich, 1979 (Zürcher Medizingeschichtliche Abhandlungen, Neue Reihe Nr. 134). 122 pp. Swiss Fr. 26.

Washington Buño and Hebe Bollini-Folchi. *Tesis de Doctorado presentadas a la Facultad de Medicina de Montevideo entre 1881 y 1902.* Montevideo: A. Monteverde y Cía. S.A., 1980. 246 pp.

William Coleman and Camille Limoges (Editors). *Studies in History of Biology.* Vol. 4. Baltimore and London: The Johns Hopkins University Press, 1980. 198 pp. $22.00.

Thomas Cooper. *Introductory Lecture and A Discourse on the Connexion Between Science and Medicine.* New York: Arno Press (A New York Times Company), 1980 (reprint of 1812 edition). viii + 48 pp. $20.00.

Norman Dain. *Clifford W. Beers: Advocate for the Insane.* Pittsburgh: University of Pittsburgh Press, 1980. xxix + 392 pp. $19.95.

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* The *Bulletin* reserves freedom of decision as to the publications to be included in this section. Items received, other than those assigned for review, are ultimately incorporated into the collection of the Institute of the History of Medicine.

John Call Dalton. *John Call Dalton on Experimental Method.* New York: Arno Press (A New York Times Company), 1980 (reprint of *Experimentation On Animals as a Means of Knowledge in Physiology, Pathology, and Practical Medicine* (1875) and *The Experimental Method in Medical Science* (1882)). iv + 179 pp. $20.00.

Luke E. Demaitre. *Doctor Bernard de Gordon: Professor and Practitioner.* Toronto: Pontifical Institute of Mediaeval Studies, 1980. xii + 236 pp. $18.00.

Kenneth Dewhurst. *Thomas Willis's Oxford Lectures.* Oxford: Sanford Publications, 1980. 181 pp. Ill. £9.00.

Beatrice Didierjean. *Geschichte der Neonatologie in Zürich 1908-1978: Kantonales Sauglingsheim Abteilung für kranke Säuglinge und Fruhgeborene Abteilung für Neonatologie der Frauenklinik.* Zurich: Juris Druck and Verlag Zurich, 1979 (Zurcher Medizingeschichtliche Abhandlungen, Neue Reihe Nr. 133). 88 pp. Swiss Fr. 20.

Paul T. Durbin. *A Guide to The Culture of Science, Technology and Medicine.* New York: The Free Press, 1980. xl + 723 pp. $45.00.

Eliot Freidson. *Doctoring Together: A Study of Professional Social Control.* Chicago and London: The University of Chicago Press, 1980. xiii + 298 pp. $7.95.

Galen. *On the Doctrines of Hippocrates and Plato.* Second part: Books VI-IX. Edition, translation and commentary by Philip De Lacy. Berlin: Akademie Verlag, 1980 (Corpus Medicorum Graecorum V, 4, 1, 2). 237 pp. DM 72.

Raquel Garcia Gonzalez (Editor). *Licenciados en Medicina y Cirugia Graduados en la Universidad de Vallodolid (1871-1936).* Vallodolid: University of Valladolid, 1979. (Acta Historico-Medica Vallisoletana IX, Monografias). lxi + 383 pp.

James E. Harris and Edward F. Wente (Editors). *An X-Ray Atlas of the Royal Mummies.* Chicago and London: The University of Chicago Press, 1980. xix + 403 pp. Ill. $60.00.

Leonard L. Heston and Renate Heston. *The Medical Casebook of Adolf Hitler: His Illnesses, Doctors and Drugs.* New York: Stein and Day, 1979. 184 pp. $12.95.

Jack D. Key and Thomas E. Keys (Editors). *Classics and Other Selected Readings in Medical Librarianship.* Huntington, NY: Robert E. Krieger Publishing Co., 1980. xvii + 742 pp. $24.50.

Franz Koch. *Der Anatom Georg Hermann von Meyer 1815-1892.* Zurich: Juris Druck and Verlag Zurich, 1979 (Zürcher Medizingeschichtliche Abhandlungen, Neue Reihe Nr. 131). 103 pp. Swiss Fr. 22.

Charles Lichtenthaeler. *Chronologische und Gedankliche Bezugssysteme in und um "Über Die Alte Medizin." (XI. Hippokratische Studie).* Geneva: Libraire Droz S.A., 1980. (Études d'Histoire de la Médecine, VI). 30 pp.

Helen Eastman Martin. *The History of the Los Angeles County Hospital (1878-1968) and the Los Angeles County University of Southern California Medical Center (1968-1978).* Los Angeles: University of Southern California Press, 1979. xv + 548 pp. Ill. $24.70.

Albert R. Milan. *Breast Self-Examination.* New York: Workman Publishing, 1980. 125 pp. Ill. $3.50.

Peter Morley and Roy Wallis (Editors). *Culture and Curing: Anthropological*

Perspectives on Traditional Medical Beliefs and Practices. Pittsburgh: University of Pittsburgh Press, 1978. vii + 190 pp. $14.95.

Clelia Duel Mosher. *The Mosher Survey: Sexual Attitudes of 45 Victorian Women.* Edited by James MaHood and Kristine Wenburg. New York: Arno Press (A New York Times Company), 1980. xix + 469 pp. $25.00.

Axel Hinrich Murken. *Das Bild des deutschen Krankenhauses im 19. Jahrhundert.* Munich: Verlag Murken-Altrogge and F. Coppenrath Verlag, 1978 (Studien zur Geschichte des Krankenhauswesens, Band 12). 235 pp. Swiss Fr. 26.

Stephen Nissenbaum. *Sex, Diet, and Debility in Jacksonian America.* Westport, CT: Greenwood Press, 1980. xvii + 198 pp. $22.95.

Elisabeth Ott. *Friedrich Horner 1831-1886: Leben und Werk.* Zurich: Juris Druck and Verlag Zurich, 1980 (Zurcher Medizingeschichtliche Abhandlungen, Neue Reihe Nr. 136). 54 pp. Swiss Fr. 13.

Hakim Mohammed Said (Editor). *Al-Bīrūnī Commemorative Volume: Proceedings of the International Congress held in Pakistan on the occasion of Millenary of Abū Rāihān Muhammad ibn Ahmad al-Bīrūnī (973-Ca 1051 A.D.) November 26, 1973 thru December 12, 1973.* Karachi: The Times Press, 1979. 844 pp. Ill. $30.00 (Available from Oxford University Press, G.P.O. Box 422, Karachi-1, Pakistan).

Bennett Simon. *Mind and Madness in Ancient Greece: The Classical Roots of Modern Psychiatry.* Ithaca and London: Cornell University Press, 1978. 336 pp. Ill. $6.95.

Martin S. Staum. *Cabanis: Enlightenment and Medical Philosophy in the French Revolution.* Princeton: Princeton University Press, 1980. xi + 430 pp. $27.50.

Kenneth E. Studer and Daryl E. Chubin. *The Cancer Mission: Social Contexts of Biomedical Research.* Beverly Hills, CA and London: Sage Publications, 1980. (Vol. 103, Sage Library of Social Research). 319 pp. $8.95.

Douglass M. Taylor. *The Monro Collection in the Medical Library of the University of Otago.* Dunedin, New Zealand: University of Otago Press, 1979. 157 pp. Ill. $35.00.

Malcolm G. Taylor. *Health Insurance and Canadian Public Policy: The Seven Decisions that Created the Canadian Health Insurance System.* Montreal: McGill-Queen's University Press, 1978 (The Institute of Public Administration of Canada). xvii + 473 pp. $18.95.

Colin Tudge. *Future Food: Politics, Philosophy and Recipes for the 21st Century.* New York: Harmony Books, 1980. 208 pp. Ill. $19.95 (cloth); $9.95 (paperbound).

Edwin R. Wallace and Lucius C. Pressley (Editors). *Essays in the History of Psychiatry: A Tenth Anniversary Supplementary Volume to the Psychiatric Forum.* Columbia: Wm. S. Hall Psychiatric Institute of the South Carolina Department of Mental Health, 1980. xviii + 205 pp. (Copies available for $5 by writing Dr. Lucius Pressley, *The Psychiatric Forum,* William S. Hall Psychiatric Institute, P.O. Box 119, Columbia, S.C. 29202).

Charles-Edward Amory Winslow. *The Conquest of Epidemic Disease: A Chapter in the History of Ideas.* Madison, Wisc.: University of Wisconsin Press, 1980. (reprint edition). viii + 411 pp. $25.00 (cloth); $7.50 (paperbound).

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